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ORIGINAL ARTICLES.

TUBERCULAR PERITONITIS.[1]

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THERE is probably no surgeon of much experience to-day, who has not encountered in his abdominal operations some phase of peritoneal tuberculosis; and, it is fair to say, he has often been confronted with it unexpectedly. The more one studies the subject, however, the more it is cleared of obscurity, and takes its place as an entity to be thought of in all cases of doubtful diagnosis in abdominal enlargements. The sudden invasion of the peritoneal cavity by the tubercle bacillus is announced by signs which have their counterpart in the joints, in the meninges, in the pleura, and in synovial tendon sheaths —and give a diverse series of phenomena.

It has been customary, in writings upon this subject, to adopt a classification dividing tubercular peritonitis according to its gross anatomical appearances, into ascitic, dry, and caseating forms. It gives a somewhat fairer understanding of the subject, however, if we consider the multiform varieties of its exhibition from the standpoint of the bacillus, and observe that each case represents a stage in the life history of the bacillus, and its results. We then see that under the varying conditions we may have: (1) An eruption of miliary tubercles on the peritoneal surface so acute that acute infectious diseases, or even strangulated hernia, have been suspected. Operations have been resorted to, in the hope of relieving obstruction, which had caused vomiting, constipation, distention, and pain. Acute miliary deposit with inflammation and a little serum only were encountered to explain the trouble; or (2) an enormous accumulation of ascitic fluid, with rapid wasting, slight pain, and no fever, has been found to follow a slower deposition of tubercles widely scattered over the peritoneum; or (3) a persistent pain or tenderness of the abdomen, with moderately tympanitic distention and irregular areas of dulness, associated with slight afternoon temperature and loss of appetite or flesh, have been found to indicate diffused tuberculosis of the peritoneal cavity without fluid, but with a varying amount of plastic exudation partially sealing its walls together; or (4) wasting of the body with irregular tympanitic distention, fever, anorexia, and sweats, associated with huge cakes of matted lymph and omentum, or sacculated ascites, or pus, have been found on operation to illustrate the latest steps of tubercle development, with caseating deposits of lymph, purulent degeneration of ascitic fluid and cicatrizing masses of gray miliary deposits; or (5) the mishaps incident to degeneration of caseating patches ulcerating into the bowels, causing fistulæ or extravasations of feces into the peritoneum; or bowel obstruction by lymph adhesions, or bands—these add to the picture of the multiform manifestations of tuberculous peritonitis, once known as *tabes mesenterica*; (6) and finally, a retrograde course in the life of the bacillus and its products may leave an abdominal cavity partly sealed by the atrophied tubercular elements which may give the patient years of comparative health.

The mode of entrance of the bacillus is undoubtedly various in different cases. It is probably less often through circulation in the blood than by direct entrance through perforation of the intestinal wall or transit from the Fallopian tube. Leaving out the cases where miliary tubercles are found on the peritoneum adjacent to the base of a tubercular ulcer of the intestines, or the cases where a perforating appendical ulcer is surrounded by them, or those where the primary deposit is about the tube or ovary, there are still a larger number where no focal deposit suggests the point of entrance, but they are scattered uniformly over the visceral, parietal, and omental peritoneum. These are not uncommon in children, and indeed, are usual in cases with large ascitic collections. It has been thought probable that in such cases milk-food has been the carrier, and it would seem probable that penetration by bacilli of follicles, minutely ulcerated or not, is the most reasonable method of entrance. A case of Bradford's, where the lad had this typical form and was known to have fed on the milk of a tuberculous cow for some weeks prior, is in evidence. It would take but a few cases to establish this view.

As illustrating another method of infection, I would quote a recent case of my own, in a lady who had been losing flesh for half a year, and

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who, though not aware of fever, had been having frequent night sweats. A slowly developing trouble in the appendix region culminated in an acute febrile attack (T. 103½°; P. 130), and local peritonitis, with a mass, which I supposed to be only an ordinary appendical abscess. On operation, the mass was composed of the caput coli, appendix, small intestine, and omentum densely matted, and all studded with miliary tubercles, with a couple of ounces of free ascitic fluid. The appendix had to be dug out forcibly. There was no abscess, but a tubercular ulcer of the mucous membrane of the appendix, which had penetrated all the coats, showed where the bacilli had made entrance.

Vierrordt reports the case of a girl of but 6½ years, with tubercular peritonitis preceded by a purulent vaginal discharge in which tubercle bacilli were repeatedly found, suggesting the vaginal route as possible in children of unclean habits.

Burdon-Sanderson, Sturgis, and Carr, in searching for the starting point of tuberculosis in children, review autopsies of several hundred, and conclude that about one-third die of tuberculosis in some form. Walter Carr shows that in one hundred and twenty autopsies, the enlarged thoracic glands show in two-thirds as the point of entrance, while the mesenterics are involved in one-sixth.

Thus we see that whether the infection gains access by the alimentary or pulmonary route, the bacillus must be early disseminated. That it is possible, however, for it to be a confined and local malady—contrary to Louis' law that "after puberty the lungs are almost always affected when any other organ is involved," is shown by Carr's 120 autopsies, where in 12 it was limited to one organ. In König's report of 2230 *post-mortems* at the Göttingen Pathological Institute, there were 107 of tubercular peritonitis, of which 99 had coexisting phthisis. Eighty had ulceration of the bowels.

That it has been found to be generalized when studied from the autopsy point of view, is not an argument for such cases as come to the surgeon's notice when a recognized local point of entrance may have still confined the disease to that focal area. While studying the curability of the disease, however, we may well keep in mind the fact that though it may be disseminated, the system may yet recover, as after other bacterial infections, and by ridding the abdomen of its nest of infection, the system may be put in an attitude to overcome the rest.

Up to recent years, and even of late, the best clinical observers have held that tubercular peritonitis is incapable of spontaneous cure. It may be fairly said, however, that recovery from chronic peritonitis with ascitis had been heretofore observed, and, with the above dictum in mind, writers have claimed that those could not have been tubercular, else they would not have recovered. This argument in a circle now stands refuted. Bouilard found in extensive search of older literature eighty-two cases of tubercular peritonitis of which twenty recovered. In some cases good health persisted ten to seventeen years after recovery. One man, quoted from Louis, twenty-four years old, had marasmus, pleurisy, and abdominal ascites. Being attacked by Asiatic cholera was nearly purged to death, and then made an excellent recovery.

Vierrordt of Heidelberg, claims much success in curing by medical measures. Among other cases he quotes that of a girl of 6½ years, without lung trouble, who had a purulent vaginitis bearing many tubercle bacilli. She was soon cured of this, but later developed a slight stomach pain, which rapidly increased to great proportions, doubling her up with anguish. She grew pallid, had tympanites with ascites and diarrhea. The dulness increased, with tenderness to pressure and continued intestinal pain. The temperature was sometimes elevated, and as often subnormal. The diagnosis was undoubtedly tubercular peritonitis, but she made a good recovery.

McCall Anderson reports (1894) a boy of nine years, delicate, with persistent cough, and rapid loss of flesh during three weeks. He was admitted to the hospital two weeks after his abdomen had begun to be painful. He had diarrhea, distention with ascites, with dull areas of lymph exudate in the front and sides. A wave of fluid was easily elicited. He had bronchitis (T. 100 to 103°, P. 140), hectic and sweats. His diarrhea was arrested; ice-cloths were applied to the abdomen, giving relief whenever the temperature rose above 100°. He remained in the hospital several months, and made a recovery in every particular.

Comby reports two cases. First, was a child, pale, and with a large, painless belly. The abdomen was like a hemisphere filled with free fluid. Nothing abnormal appeared about the chest, or heart, or urine, to account for the abdominal state. The child had lost a brother with tubercular meningitis, and the parents had phthisis. A purgative, sulphur baths, and milk diet were given. In one week there was amelioration. Calomel purgation was given with improvement, and the child was allowed to go to his parents. One year

and a half later it was brought back in perfect health, with supple abdominal wall and no ascites. In a second case, a woman with vague abdominal pains and a temperature of 101°, showed pulmonary crepitation and dull areas. The abdomen was distended, and showed a caked mass in the peritoneum, with evident peritonitis of a subacute form. Consultations were held, and it seemed proved that she had pleuro-peritoneal tuberculosis. She was given creosote pills and podophyllin purgation, and recovered.

Marfan reports seven cases satisfactorily treated with medicine alone.

Such claims as these, which are scattered here and there through journals, and based on clinical evidence without bacteriological proof, seem to me to be worthy of credence, and I am willing to think there are many mild cases spontaneously cured by medical means. Indeed, it would be presumptuous to claim for surgical measures what we do if the powers of nature are not credited with a large measure of successful effort. The overthrow of the tubercle bacillus in its stronghold in diseased bones, joints, spine, lungs, synovial sheaths, and even the meninges, is to-day so universally recognized that *a priori* we must grant the probability of its conquest in the peritoneum. But the disease has not yet been taken out of the domain of medicine entirely. Since Spencer Wells, in 1862, cured the earliest recognized tubercular peritonitis case, encountered by accident in removing a diseased ovary, and since König advocated, in 1884, the general resort to laparotomy in all cases of tubercular peritonitis after he had cured three cases, there has been a very general resort to this method, and a sustained confidence in its results when applied properly.

The two classes of most value as proof, are those surviving for several years, and those who, having died from other causes, have given opportunity to see that the miliary tubercles present at operation have disappeared or become altered and reduced to innocuousness. In illustration of the latter, a case by Guignabert is of moment. A woman of thirty, with abdominal pains and vomiting, and tumor to the right of the middle of the abdomen, and evident tubercular peritonitis, is reported. On operation yellow serum was evacuated, and tubercles found studding the peritoneum and abdominal walls. The mass constituting the tumor was composed of adherent viscera and mesenteric glands. Antiseptic solution was used to bathe the surface, and she left the hospital cured. Returning in a fortnight for a plegmon of the neck, of which she shortly died, autopsy showed no fluid in the peritoneal cavity. The congested bowels had returned to a normal gray, and it was impossible to find a trace of the many tubercles visible at laporotomy, except at one small spot. The retromesenteric glands were caseating and shrinking. The intestine was not ulcerated. Another case is reported by Osler where Halsted had cured a classic case of tubercular peritonitis existing six months, in a woman of twenty-eight years, by washing and draining. The intestines were matted and tubercular. Councilman had found bacilli. She recovered, and returned to the hospital weeks after with acute pneumonia, of which she died. Autopsy showed some adhesion along the scar, and a few adhesions with the omentum, but none between intestinal coils. Over the peritoneal surface there were some few flat tubercles, mostly near the ileocecal valve. A recent pleurisy and pneumonia were present, but a most critical examination failed to reveal tubercles therein. The peritoneal tubercles were still rich in bacilli, but undergoing fibroid changes. Kümmel quotes several cases where late autopsy showed entire absence of tubercles where they had been seen at operation one or two years previous. In a recently reported case of Dr. Hamill of Philadelphia, a woman of twenty-four had for two years suffered a decline in health so that she was reduced to a condition of exhaustion and emaciation. Examination showed a painful abdomen distended by ascites. The right ovary was enlarged, and tubes and ovaries adherent. Laparotomy in November, 1894, revealed a thickening of peritoneum to four times its normal. A large ascitic collection was evacuated. All the viscera were extensively adherent to each other, and the omentum and all were thickly studded with miliary tubercles. Adhesions were broken up, and thorough irrigation with boiled water was given. She made a rapid convalescence and gained flesh. One year later a ventral hernia called for an operation. The peritoneum was normal in thickness; no ascites had reformed. There were no tubercles on the peritoneum, a very few on the intestines, and more on the ovaries and tubes. These latter were removed. Irrigation and closure without drainage resulted in primary union. The patient made a quick recovery, and was apparently restored to perfect health.

Of the hundreds of cases operated on for every stage of the disease, the recoveries have been estimated at twenty-five to eighty per cent., and of these, the great majority have survived from six months to several years.

After reading the reports of every case of which mention is made in the French, German, and English, I find the points worthy of attention to be, the variety of stages at which the disease has been attacked; the methods of operation; and the theories of curative action. The cases most favorable reported are undoubtedly those where an acute or a subacute inflammation with ascites has been operated on simply by abdominal section, with evacuation and immediate closure. Most operators have added to this the detergent effect of boiled water irrigation or the alterative action of natural salt solution, or the mild antiseptic action of boracic acid, weak carbolic acid, thymol, mild bichlorid of mercury solution, or camphor naphtol, or iodoform, powdered or in emulsion. In no case does there seem to have been any disposition to absorb the antiseptic. In fact, the altered condition of the peritoneum must render it less liable to absorb. Most successful cases have been drained, either by a tube or iodoform wick, or a Mikulicz tamponade, yet evacuation alone is apparently capable of curing, even though immediate suture of the abdomen is done. In the dry form, that is, with notable presence of miliary tubercles, with or without plastic exudate, but no appreciable amount of serum, there would seem to be a call for some specifically acting material to affect the free bacilli, and here most often the use of chemicals has been made. The liberal use of iodoform in glycerin emulsion seems more than justified in the cases reported in the German clinic. The most striking treatment with pure camphor naphtol has been advocated by Guignabert in his thesis, 1894. It is the method of Rendu. After reporting several cases where the camphor naphtol was injected through a cannula to the extent of half an ounce after the ascites had been evacuated, he quotes the case of a woman of thirty, with grave symptoms, and a dry, tubercular peritonitis. A sponge wet with camphor naphtol was brushed over the entire exposed intestine wherever involved, and the abdomen closed. She recovered promptly. After six months she returned with a phlegmon of the neck, of which she died. Autopsy showed an entire disappearance of miliary tubercles and a restoration of inflamed intestines to a healthy gray.

In another case of a boy of fourteen years, with many liters of ascites and miliary tubercles everywhere in the peritoneum. After laparotomy he sponged the affected bowel with camphor naphtol, and had the pleasure of witnessing a perfect recovery, with dry peritoneum months afterward.

In a boy of twelve years whose abdomen contained flocculent fluid, circumscribed and confined by matted intestines and abdominal walls everywhere studded with tubercles, the cavity was washed with camphor naphtol and closed. A complete cure was maintained long afterward. In another patient of twenty-five, whose abdomen was as distended as a seven months' pregnancy, seven quarts of clear fluid were evacuated and ten grams of camphor naphtol injected through the cannula. In a month a noticeable caking had taken place in the abdomen, which softened in another month with retraction of the abdomen. It seemed to follow a course like the absorption of a pleurisy. The patient steadily gained in weight and made a perfect recovery, with no hardness, dulness, or tenderness.

In a girl of sixteen years, with night sweats and ascites, he evacuated six quarts of clear fluid and injected 5 c.cm. of camphor naphthol. No reaction or fever followed. Slight pain and thickening of the omentum occurred. Convalescence was perfect, so that one month later there was no pain, thickening, or ascites. A ginuea-pig inoculated with ten centimeters of this ascitic fluid had rapid tuberculosis, and at autopsy on the twenty-ninth day had tuberculosis of the peritoneum and liver.

Berger reports two cases thus treated with benefit and without accident, though both had phthisis, and succumbed within five months. In advocating camphor naphtol, Guignabert describes it as having the effect of iodoform, without poisonous properties. It is an unctuous, white liquid, made by fusing one part naphtol and two parts camphor—which fuse with heat—and may be filtered and kept stoppered. Being insoluble in water, it is distributed under its own form by peristalsis, and is claimed by M. Perrier to have remarkable antiseptic action, especially antagonistic to tubercular bacillus, as is shown in tubercles of the mouth, pharynx, larynx, bones, joints, and glands. It is slow to be eliminated, slow to be absorbed, and produces no local necrosis of tissue. It seems to be especially worthy of trial in cases where the dry tubercle is exposed on the surface of matted and separated bowel.

Direct medication of the miliary tubercles by camphor naphtol, or by iodoform, dry or in emulsion, represents the greatest proportion of attempts to cure, pointed at the life of the bacillus. Yet the greatest number of cures have been without direct medication. The surgical world has not yet recovered from the surprise that followed Wells' and König's advocacy of simple laparotomy, and we therefore find a considerable pro-

portion of remarkable cases cured after evacuation only by simple incision. Nevertheless, the fact that evacuation alone of the ascitic fluid by trocar has been a lamentable failure, has resulted in the advocacy of irrigation by Thiersch solution, or sterilized water, weak carbolic, or bichlorid solution, or by normal saline solution. Each of these resorts has the same excellent cures to show. Even the ballooning up of the peritoneal cavity by sterilized air after the evacuation of ascites has been advocated by Von Mosetig, and several excellent cures reported. This is well illustrated in a paper by Folet of Lille, one of whose patients was in perfect health eight months later. She was a woman of forty, with a cured pleuro-bronchitis, followed by tubercular peritonitis with grave ascites. The fluid was drained by trocar, and air insufflated into the abdomen until she was greatly distended. The result was entirely benign. The appetite returned, fever left, the air was absorbed, no fluid re-collected, and, except for a remnant of pleuritic trouble, she was cured.

The value of medication, then, must be discounted. Much speculation has filled the literature on the subject as to why cure results. The first theory naturally considered the traumatism in opening the peritoneum as responsible. Then the contact of air with the serous membrane was credited with an unexplained curative action. The formation of adhesions as a protection to the absorbing surface; the specific action of radiated sunlight, which Koch has shown would kill tubercle bacilli; the access of bacterium of putrefaction normal to the air, and which are antagonistic to the tubercle bacillus; the simple diminution of pressure of ascitic fluid favoring recuperative heart and lung action; the vague term psychical influence; the reflex effect of peritoneal operative handling; all have been advocated in many languages, but have failed to give satisfaction.

The theory that is sustained by most facts is that based on the life history of the bacillus; the capacity of the animal economy, not only to suppress the activity of the organism by encapsulating it, but to remove it by absorption. The proper opportunity for conquest is not afforded in the presence of ascitic fluid, which aids as a veritable culture bouillon, and by its fluidity aids dissemination. When, however, the peritoneum has been aroused by congestion, which follows evacuation, and an inflammatory action is set up, engendering cell hyperplasia wherever the irritation of bacilli is felt, the intruder is walled in. Retrograde degeneration soon sets in, and the morbid material is absorbed slowly but surely until as many cases now record, the peritoneum may become normal where a few weeks or months before it was studded with miliary bodies. The same retrograde change seen frequently after laparotomy where disseminated sarcoma or papillomata have been discovered, makes an analogous clinical picture.

König and others accept the idea that fibrous transformation of tubercle is induced by the leucocytosis or hyperplasia following the substitutive and healing inflammation after laparotomy, or, as Roersch put it, the laparotomy does not cure, but only aids nature to bring it about. Some recent experiments by Manniotti and Baciochi on rabbits and dogs, to determine the influence of laparotomy on induced tubercular peritonitis, are interesting. In dogs, a cure always resulted; in rabbits not so, though improvement was common. The tubercles were absorbed and transformed into connective tissue, though some were slow to disappear. Irrigation with sterile water or antiseptic solution have no value in bringing about a cure in experimental cases. Their conclusions are that the inflammatory reaction established, with an increase of absorptive power, is curative. Very recent experiments by Gatti and Vassilevsky, show also retrograde changes by degeneration of epitheloid cells rather than by phagocytosis.

In conclusion, then, we can say, that now, more than at any time in the past, it is the imperative duty of the surgeon to freely evacuate by incision all fluid of a tuberculous peritonitis. In all probability, additional perfection will be obtained by irrigation with normal salt solution, and closure of the abdomen. Where advanced tubercular deposits can be sponged over with camphor naphtol, it is probable some additional good will accrue. The cure in undoubted tubercular cases may be absolute, though remnants of disease are apt to be latent. The purulent form of tubercular peritonitis is amenable to the same treatment. As regards the general disseminated tuberculosis, with tubercular peritonitis, we must, if we read the cases aright, regard that as occasionally capable of cure. Patients in almost moribund condition with extensive ascitic form, have been frequently restored to health. The treatment by puncture may be dismissed as inadequate. The power of the peritoneum to suppress a widespread tuberculous infection cannot be doubted, and its mode of action is through reparative inflammation, embedding the bacilli,

and forcing retrograde metamorphosis. Cure has frequently followed a second laparotomy when the ascites has reaccumulated—which is the exception.

THE RELATIVE IMPORTANCE OF THE STOMACH AND THE OTHER DIGESTIVE ORGANS.

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THE popular estimate of digestion makes it a function of the stomach alone, the mouth, pharynx and esophagus constituting a comminutor and hopper device for supplying the stomach, while the intestine is thought of merely as a sewer. Within comparatively recent times, the medical opinion on this subject has swung to the opposite extreme of regarding the stomach as a reservoir for food, in which maceration and some preliminary digestion are provided for. The development of gastric chemistry on a clinical basis, has caused the pendulum of medical opinion to swing back again almost to the extreme of the old professional and present popular view. The former extreme was due to the existence of speculative philosophy without research on physical and chemical lines, the modern extreme to a pragmatic devotion to technic without sufficient theorizing or assimilation of observed facts. The man who must wash out every stomach and apply the same routine of chemical tests, without due consideration of what physical examination or careful study of history may reveal, is obliged to center the physiology and pathology of digestion in the stomach since the intestine and its tributary glands do not yield themselves so readily to systematic investigation nor to nice discriminations of therapeutics.

Within very recent times, investigators who have been able to combine reasoning with observation, have arrived at a truer conception of the relative importance of the stomach. This conception is not so satisfactory as the sweeping assertion that this organ was the mainstay of nutrition or that it was a mere accessory of digestion, since it is not adapted to unqualified statements and simple classification, nor can it be properly appreciated either by the pure theorizer or by the blind imitator of scientific technic.

The alimentary tract provides doubly for the digestion of the more important foods. Both the saliva and the pancreatic juice deal with starches, both the gastric juice and the pancreatic with proteids, all the secretions which mingle in the intestine aid in emulsifying and digesting fats. The carefulness with which mastication is carried out, the character of food, the various circumstances which tend to delay its passage through the stomach, the avidity with which the blood-vessels absorb water and dissolved solids, temporary abeyance of function, all determine differences in the precise character and the location of the digestive act.

Much attention has been given to the examination of the stomach contents after test meals and much has been learned from this study, but we must bear in mind the danger of generalizing from such observations, since the time and course of gastric digestion vary greatly with the bulk and kind of food ingested. Gastric digestion includes the complete peptonization of some proteid material. According to most writers, very little true peptone is formed in the stomach but the writer has frequently observed a slight precipitate with heat alone, a slight precipitate also with ammonium sulphate and a considerable precipitate with tannin or mercuric chlorid in the absence of dissolved starch. If this does not indicate the formation of true peptone in excess of intermediate products, the writer awaits correction. The relative amount of peptonization which takes place in the stomach as compared with pancreatic digestion in the intestine, varies inversely as the amount of food taken.

The duration of gastric digestion has not the bearing on this question which might be anticipated. Sluggish motility of the gastric wall is almost always complicated with diminished secretory power while a delay on account of a large bulk of food does not allow relatively better digestion. The notion that the stomach empties itself at a definite time after eating has been exploded; it is now known that the passage through the pylorus depends rather on the perfection of mechanical than of chemical digestion and that chyme enters the duodenum in small quantities, at short intervals. Thus, the first chyme that enters the intestine is slightly digested, the last quite thoroughly, and between these first and last consignments from stomach to intestine, the degree of digestion has gradually become more perfect. Most soluble saline constituents of food are absorbed from the stomach but water remains almost unaffected in bulk till the intestine is reached, unless extreme thirst causes unusual activity in the absorptive apparatus of the stomach. This is shown by experiments on animals. For example, a dog's intestine is severed near

the pylorus and the upper end is brought out of the abdominal wound. In this condition, the dog is almost entirely unable to slake his thirst, water swallowed issuing from the bowel, so that the poor beast continues lapping indefinitely. After small and quickly digestible meals, probably nine-tenths of the work of digestion falls on the stomach while, after a hearty mixed meal, containing an abundance of fats and vegetable fiber, it would be nearer the truth to ascribe nine-tenths of the work to the combined intestinal fluid. Such figures are, manifestly, mere approximations, nor would it be possible to imitate the normal processes of digestion by experiments in ventre nor to investigate the digestion of animals without interfering with the same normal processes.

Abandoning, therefore, the attempt to obtain a quantitative statement of the proportionate work of the stomach and pancreas in digesting proteids, we must admit that the stomach ranks in importance, somewhere between the popular belief and the modern skeptical view that it is merely a macerating and predigesting chamber. Aside from proteid digestion, the stomach is the cavity in which—though not by which—cooked starch is transformed into maltose. This change is not usually complete, from the simple fact that insalivation and mastication are rarely properly performed and, from the varying degree of acidity of the gastric juice.

Conflicting tendencies present themselves which render it almost impossible to predict the exact result of ptyalin digestion in the stomach. A light meal offers less resistance than a hearty one, but the hydrochloric acidity develops earlier and reaches a higher degree in the former case, so that there is greater inhibition of ptyalin digestion. It certainly seems that some maltose is absorbed from the stomach but it is well established that the normal completely digested carbohydrate is glucose, formed by the intestinal invertive ferment. Maltose has not been demonstrated in the blood passing to the portal system from the stomach, yet it does not accumulate in the chyme as we should expect. The saliva, though much less energetic as a diastasic digestant than pancreatic juice, is perfectly competent to digest all the cooked starch taken at a hearty meal. Like the proteid digestion, that of starches in the stomach is necessarily very variable and incapable of quantitative estimation, in general terms.

But, whatever the relative physiological importance of the stomach, it is practically the most important part of the alimentary tract, since it can be most readily investigated and since, through it, must be directed a large share of the treatment of the other digestive organs. This statement must not be understood in the narrow sense that medicines are commonly introduced by way of the stomach. The majority of cases of intestinal indigestion are due largely to the entrance into the duodenum of undigested and irritating chyme and, until we have removed this exciting cause, by aiding gastric digestion, we are practically helpless in our attempts to modify the digestive capability of the intestine. It is true that we can get the local effect of antiseptics, astringents, and cathartics on the intestine but such drugs do not directly aid digestion, in fact many of them hinder it for the time being. Experience teaches that such medication cannot be long continued and that, on the whole, the best treatment available for intestinal disorders is the regulation of gastric digestion.

Of the two large glands contributory to the intestine, the function of the pancreas is quite thoroughly understood, but its functional diseases are unknown to us and, of the organic diseases, it is only rarely that we can recognize carcinoma, cystic degeneration, and lithiasis. The liver, on the other hand, is an organ whose physiology is still disputed or absolutely mysterious, though its gross lesions and even defects of function are fairly demonstrable during life. Here is presented the strange contrast of an organ which we understand in health but scarcely at all in disease and one which we can diagnose and treat with some satisfaction, though ignorant of its value to the body in health. In either case, depletion, stimulation, and other modifications of function are carried out by means of the stomach, by whose condition is gauged the method and intensity of treatment.

A decided difference between gastric and intestinal digestion is that the former normally proceeds with practically no interference from microorganisms, while the latter is always attended by the action of organized ferments and, in the lower bowel, true putrefaction occurs. Moreover, gastric digestion, except by the elaboration of a few organic acids during the preliminary stage of less than an hour, does not develop nor normally allows to be developed substances which are useless to the body. Pancreatic digestion, on the other hand, even if kept artificially free from concomitant bacterial fermentation, produces leucin, tyrosin and other nitrogenous substances, which are essentially excrementitious.

A REVIEW OF THE CAUSES AND TREATMENT OF ABORTION.[1]

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THE premature expulsion of the fetus in the early months of pregnancy is an event of great frequency. The number of fetal lives thus lost is enormous. There are few multiparas who have not aborted. Hager estimates that about one abortion occurs to eight or ten deliveries at term. Hirst estimates one abortion to every four or five deliveries at term. Whitehead has calculated that at least ninety per cent. of all married women, who have lived to the change of life, have aborted. The influence of this incident on the future health of the mother is of great importance. It rarely indeed proves fatal, but it often produces great debility from the profuse loss of blood accompanying it, and it is one of the most prolific causes of nervous and uterine diseases in after life, possibly because the women are more careless during convalescence than after delivery, and the proper involution of the uterus is thus more frequently interfered with.

By the term "abortion," in this paper, I wish to be understood to refer to the expulsion of the ovum before the fourth month.

Among the usual causes of abortion are: (1) Death of the fetus; (2) abnormalities and diseases of the membranes, including the decidua; (3) apoplexies of the ovum; (4) traumatism; (5) diseases of the mother directly affecting the product of conception (as syphilis); (6) The fact of the mother having previously aborted; (7) irritable uterus (the expulsion in such cases results from a trivial cause, as a long walk, purgatives, jolting, congestion of the pelvic organs, chronic constipation, reflex irritation, as from suckling; extraction of a tooth, pruritis, ovarian disease, etc.; these causes are most liable to produce abortion at the menstrual epoch); (8) spasmodic muscular action in the mother, as chorea; less than half the cases going to term, the premature expulsion of the ovum being explained by physical exhaustion, blood stasis and CO_2 in the uterine muscle, stimulating it to contraction, or by choreic movements in the uterus itself; (9) uncontrollable vomiting and coughing; (10) epileptic, hysterical, cholemic, and tetanoid convulsions; (11) poisons of all the infectious fevers; (12) certain local conditions cause abortion, as tubal or ovarian disease, perimetritis and adhesions, fibroids and polyps, uterine displacements, laceration of the cervix in irritable uteri, previous overdistention of the uterus from hydramnion or multiple pregnancies; and finally, as rare causes, might be placed obesity and contagious abortion, the last being really cases of septic infection (Hirst).

The clinical phenomena present hemorrhage, pain, expulsion of some portion of the ovum. All three are rarely typically manifested in every case. Their duration varies from an almost instantaneous act to days or weeks. In *early* abortions, hemorrhage is more pronounced than *pain*, and the blood is extruded in coagula. The appearance of the substance expelled varies with the period of pregnancy and the entirety of the product of conception. The coronal coat may be entire, the decidua alone may surround the embryo, or it may be surrounded by the amnion. Most frequently the decidua vera remains behind, and hence the danger of sepsis.

In regard to the mortality of abortions, out of 926 cases noted by Hirst, there were 13 deaths—a mortality of 1.4 per cent.

The diagnosis of threatened abortion would be made in a case where we had hemorrhage and more or less pain in a patient, with signs of early pregnancy. The diagnosis of inevitable abortion would be made from persistent hemorrhage, dilatation of the os, ovum presenting, considerable pain and effacement of the angle between the upper and lower segments. Exceptionally one or more of these may be present and the case go to term. The diagnosis of incomplete abortion is made by examining carefully the fragments discharged by floating them in water. Here the digital examination will usually find the os patulous and detect shreds of decidua, the placenta, or fetal membranes in the uterine cavity. The diagnosis of complete abortion is made by the uterus being firmly contracted, the os retracted, and examination of the uterine cavity difficult or impossible. Here the diagnosis must depend largely on the *history* of the case, the examination of the discharge, the enlarged uterus, lochial discharge, and finally the disappearance of the presumptive signs of pregnancy, which had previously existed. Inevitably the ovum must be destroyed. Retained fragments may develop into polypi. The dangers to the woman are hemorrhage, particularly the secondary effects, and sepsis.

The preventive treatment includes the causes that may exist in any case. Enjoin rest at the menstrual epoch, and restrain sexual intercourse where there is an irritable uterus. Replace a displaced uterus; repair a lacerated cervix; treat

[1] Read before the Delaware County Medical Society, June 19, 1896.

any inflammatory condition about the uterus. In threatened abortion, the treatment is absolute rest in bed, drugs to diminish nervous sensibility and muscular action, as opium, potassium bromid, and chloral. Opium should be given in full doses, by the mouth, hypodermatically, or by the rectum. The fluid extract of viburnum prunifolium, in dram doses, is very efficient. It may be combined with opium, administering the latter by suppository. In inevitable abortion, the treatment is as follows: If the hemorrhage is profuse before dilatation of the os occurs, control the bleeding by vaginal tampons of antiseptic wool or baked cotton. Remove in eight hours and reapply if required. Often when the first one is removed the ovum is found extruded, when the urgent symptoms may subside (Hirst). The plugging of the vagina may be done in various ways. The tampon may be made of a long strip of aseptic or antiseptic gauze, or of pledgets of cotton (antiseptic absorbent) or wool, or, in the absence of these materials, of any soft fabrics, such as a silk handkerchief, a soft towel, or strips or pieces of sheeting, cheese-cloth, an ordinary roller-bandage, etc. Whatever material is used, it is understood that it must be thoroughly sterilized by boiling, by dry heat, or by steam, or it may be scalded thoroughly in some hot antiseptic solution. If a large number of pieces are used, they should be secured together by a string, so as to facilitate their withdrawal. More accurate tamponing can be done when the tampon is dry than when it is wet. For introduction of the tampon, the patient should be placed across the bed or, better, on a table, in the dorsal or Sims' position, with the hips at the edge of the bed or table. A very copious hot water or hot antiseptic vaginal douche should next be given, after the bladder has been emptied. The tamponing may be done with the aid of a Sims' speculum, if assistance is at hand; if not, then a bivalve speculum may be used, or as some prefer, one or two fingers are introduced into the vagina, and there act as a guide. With dressing forceps one end of the strip of gauze or a pledget of the tamponing material is passed into the vagina along the introduced fingers and is accurately packed by them into, against, and about the os and the cervix. The tamponing should be continued in this way until the vagina has been moderately filled. Moderate doses of the fluid extract of ergot should be administered every two or three hours, together with quinin or strychnia where these are indicated for debility. If there is much pain, five-grain doses of phenacetin will give the patient comfort without interfering with uterine contraction (Etheridge).

In these cases the deciduous membrane in the early months, and the placenta in the later, are apt to remain behind. The best method to employ for their removal is a disputed question. Riviére states in every case, "If there is no complication, do not hasten; let there be no untimely exploration—simply expectation, rest, and antisepsis. If complications occur, the treatment must be active." Hirst[1] teaches the following: "The expectant plan combines the use of ergot, the tampon, and great care to avoid rupturing the membranes. If the abortion be incomplete, rest in bed, small doses of ergot, vaginal and, if possible, intrauterine douches of antiseptic solutions. *At the first sign of sepsis, the uterine cavity should be cleared out.*" The active plan of treatment, which is better, involves the use of the tampon to control bleeding, and the removal of the contents of the uterus by the finger (rendered thoroughly aseptic before using), or, in experienced hands, the curette, after which an intrauterine douche of a two per cent. solution of creolin should be given. If needed, Hager's dilators may be used to stretch a retracted os.

Very little after-treatment is required beyond confinement in bed until involution is complete. When the expectant plan has been followed, antiseptic douches are to be used and the earliest indications of sepsis looked for.

Riviére, in cases of septicemia, when the disease has been early recognized, uses antiseptic vaginal injections, morning and evening, and employs powdered iodoform upon the vulva, and the occlusive dressing with aseptic cotton, secured by a T bandage. If, after careful antisepsis and the free use of quinin, the fever does not abate and chills recur, he again employs the curette. After all cases of curetting, whether digital or instrumental, he injects Churchill's tincture of iodin.

Warmann uses asafetida with good results in "abortio-habitualis." He uses the drug in pill-form, commencing with two a day and increasing to ten, subsequently reducing.

The plan advised by ancient writers of employing phlebotomy in cases of threatened abortion has been successfully used by Viscaro. He draws one or two ounces of blood from one of the veins of the hand. He cites a number of cases where the symptoms of abortion have subsided and the pregnancy continue to term.

[1] "Syllabus of Lectures." Edited by Norris.

CLINICAL MEMORANDUM.

CYST OF THE BRAIN IN THE FOOT OF THE LEFT SECOND FRONTAL CONVOLUTION; MOTOR AGRAPHIA (?) FROM INABILITY TO SPELL; EVACUATION OF THE CYST; IMPROVEMENT; TRAUMATIC MENINGEAL HEMORRHAGE TWO MONTHS LATER; SECOND OPERATION; RECOVERY.

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MR. W. E. F., white, aged thirty-four, born in Pennsylvania, married, stock raiser by occupation; resident of Colorado nineteen years, first consulted me April 18, 1895. Father is living and well, mother was subject to "sick headache," and died of "brain fever"; two brothers are living and in good health, except that they suffer from "sick headache"; one aunt is also similarly affected. There is no epilepsy, consumption, insanity, or alcoholism in the family.

The patient as a child was strong and rugged. At his twelfth year he suffered from an attack of measles. At the tenth or twelfth year he began to be subject to severe headaches. They would occur every two or three weeks and pass off after several hours' sleep. The attacks seemed to be brought on by exposure, exhaustion, overeating or some indiscretion in diet: The pain came on suddenly, was sharp, dull or aching in character, and located chiefly in the right temporal region. After several hours, the patient would vomit one or more times, fall asleep and awaken free from pain. As maturity was reached the attacks lessened in frequency and severity, and during the last five years he has experienced only a few seizures each year, the number depending apparently upon irregular habits and indiscretions in eating. He has not been addicted to frequent or excessive use of alcohol. During his twenty-second year, subsequent to exposure to cold, he suffered from severe pain in the left ear. Ten days after the pain commenced, a purulent discharge began from the external auditory meatus of this ear, and continued for three weeks. Six years later he had an attack of la grippe, which was followed by a purulent discharge from the same ear, that ceased after two weeks. Since then his hearing has been lessened in the left ear, and he occasionally experiences a throbbing sensation in it. Five years ago he contracted syphilis, but no secondary symptoms followed. The patient has suffered from indigestion for some years. The symptoms of this have been heartburn, pyrosis, eructations of gas, and distress after eating.

In 1892, one year after his marriage, his wife observed that he was becoming very jealous of her. He would become enraged if he saw her talking to her own brother. After his explosive fits of jealousy, for which there seemed to be no cause, or even the suspicion of one, he would tell his wife that he did not mean what he had said. His jealousy concerning his wife increased, and sometime in 1893, while she was lying in bed with him one night, he tried to choke her. She broke away from him and asked him what he meant. He smiled and said he was only playing. She at that time noticed no other evidence of mental deterioration, except that he was becoming more irritable. In September, 1893, he first experienced difficulty in writing. Before this he had been a good and rapid penman, having served as bill clerk in the house of representatives during two sessions of the State legislature. The difficulty in writing consisted in misspelling and in transposing the letters of the words. The disturbance soon became so great that it was difficult to make any sense out of what he had written. He had been before his illness fairly good in spelling, but at times was careless. Scarcely a word of any length was spelled correctly a year after he began to experience difficulty in writing. He soon ceased to write as the effort was tiresome to him and he had to spend an hour or more in trying to write a page of note paper. In February, 1894, he suffered an entire night from severe, sharp, shooting pains in the chest in the region of the heart. The attack gradually subsided the next day, but he was left weak and very nervous. He has not had so severe an attack of this since the first one, but every few weeks, since the occurrence of the first, he has experienced sharp and shooting pains in the cardiac region.

In July, 1894, the patient began to suffer from pain in the frontal region. In character this resembled the cardiac pain which he had experienced some six months before. After July, 1894, the head pain became quite frequent, occurring every two or three weeks, sometimes every few days. The pain lasted for a few hours and disappeared after a few hours' sleep. He did not feel nauseated at the time, nor did he vomit. During the paroxysm he frequently found some relief on closing his right eye.

Three months before consulting me, or about the middle of January, 1895, while the patient was conversing with his wife, he suddenly found himself unable to talk for fifteen minutes. He could not utter a single articulate sound. He says that his mind was perfectly clear at the time, and he thinks that he could have written what he wanted to say, had he not been so nervous. He, however, made no attempt to write. Gradually his power of articulation returned and within fifteen minutes after he was first able to speak, he could call his wife's name, and frame a few sentences connectedly. An hour later all speech disturbance had passed away. Since January the patient on four or five occasions has experienced difficulty in speech which came on suddenly, but at no time has there been a total inability to speak, as in the first attack.

Between the seizures of speech difficulty the patient often shows hesitancy in speaking, but, as a rule, he could talk quite well. He says that since January he has had difficulty in remembering proper names, and occasionally has used a wrong word when he knew well the word that he wanted to employ.

Six or seven weeks ago he experienced a peculiar visual disturbance. He says it appeared to him as though he was looking into a tunnel. Outside of his central vision everything seemed hazy and indistinct. His expression was: "It looked to me as though my central vision was surrounded by clouds of steam." The defect in vision lasted for about half an hour, and it has recurred twice since. Yesterday the patient experienced some temporary blurring of vision. It came on suddenly and disappeared rapidly after it had lasted for a few minutes. The difficulty in writing, which was first observed about eighteen months ago, has continued; and this morning he suffered from the frontal pain for one hour.

Examination April 19, 1895.—Physically the patient looks, and says he feels, strong and well. He is unusually well developed and strong. He experiences much less trouble with his stomach than he formerly did. Gait perfect, no ataxia, no paresis, or paralysis of any muscles. Dyn. R., 236; L., 210. All the deep reflexes about normal except that the knee-jerks seem a little lessened; the reflexes of the right arm are all a little greater than in the left. All the superficial reflexes are present except the cremaster, and their absence can be accounted for by the presence of a double inguinal hernia, which has existed for a number of years. A fine tremor at times is observed in both arms. It is said to come on after exertion and is more marked in the left than in the right arm. All general sensory phenomena are normal. Taste and smell are present and equal. Hearing: Watch, R., 10/12; L., 9/12. Tuning fork is heard a little more distinctly in the left ear. Vision in each eye, 6/9; fields normal, both for light and color; pupils normal in size and react readily to light and accommodation. External ocular muscles act well. Fundi and disks show no pathological change. Slight refractive error. Mental action slow with lessened power of mental concentration, sustained attention, and memory. There is no form of visual or auditory defect in speech. The receptive centers concerned in speech memory seem to act normally. On testing the motor or emissive side of speech, it is found that he can speak voluntarily, but that speech is a little slow, and he occasionally hesitates in pronouncing long words. He repeats words after another quite readily, except that he is slow and deliberate in articulation, and sometimes he hesitates before trying to utter some words. It is observed that the greater the effort he makes in trying to utter a word, the more nearly he succeeds. If the patient makes a mistake he at once recognizes it and usually corrects it. He has no difficulty in thinking in speech. I am unable to discover any special difficulty in the use of any part of speech. He understands and uses gesture expressions in speech. On testing his ability to write a peculiar defect is found. He writes his name perfectly and copies script and printing into script with scarcely a mistake. In writing voluntarily he transposes the letters of a word, adds and omits letters, so that what he writes makes very little sense unless one knows what he is trying to say. On requesting him to spell words it is found that he spells the words just as he writes them. It seems to matter but little how he spells a word, he usually pronounces it correctly. The thoracic and abdominal organs appear healthy.

The pain of which the patient had complained during the last few months had been referred to the right frontal region, but the more reliable localizing symptom, the disturbance in speech, especially inability to write, the so-called agraphia of the motor variety, pointed to the left frontal region as the seat of some organic brain disease. The opinion was expressed that a tumor was forming in the motor speech center, and affecting more particularly the foot of the second frontal convolution. He was placed upon increasing doses of potassium iodid, requested to remain in town and report once or twice each week. He returned home, a distance of about fifty miles, a day or two later, took the medicine irregularly for a short time, but not improving, he soon discontinued its use entirely. I did not hear from him again until October 24, 1895, about six months after he had first consulted me.

During these months he suffered nearly constantly from dull heavy pain on both sides of the head in the frontal region. He also experienced about twice a week severe paroxysms of acute pain. During these attacks the pain was located in the frontal region, but always worse on the left side, and most intense in the anterior and upper portion of the temporal fossa. The paroxysms usually occurred during the latter part of the day or early evening, and passed away after sleep, as before noted. Their occurrence seemed to be due to exposure to the sun's rays, over exertion, or excitement. Occasionally an attack would be mild, but the next one would be very severe. During the time the pain was most severe, the scalp over the anterior portion of the head, but more especially over the left side, would become sensitive to pressure. His speech disturbance increased, and he became more irritable and forgetful.

On October 24, 1895, I was hastily summoned to see him at his home, in consultation. In addition to the facts already stated, I learned from his wife that his eyes had not troubled him much since I was consulted, except that occasionally the peripheral fields of vision would become blurred for a few minutes. About May 15, 1895, she observed that her husband did not walk as well as formerly, and six weeks ago he manifested a tendency to go to the left in walking, and would frequently trip because his feet were not raised sufficiently high. He had not been able to dance as well as formerly. There had been for sometime an awkward movement of his hands, and in reaching after things his right hand would close before the objects that he intended to grasp were approached. The patient had become quite nervous, and his power of mental concentration and sustained attention were much lessened. His memory for recent events was very poor, but for those of early life it was unimpaired. He had lost considerable in weight. On two occasions when he was suffering from severe headache, he had projectile

vomiting, and seemed to be almost unconscious for several hours each time. Six days before I was summoned, he began to suffer from a paroxysm of severe headache. After it had lasted several hours, he lost his power of speech for two or three days. He seemed in a semi-conscious condition, lay in bed and took little notice of things if not disturbed. He could be aroused and his attention engaged for a short time, but he seemed dazed. He complained of his right arm feeling numb as he began to regain consciousness. When I saw him there was no paresis or paralysis of any muscles; the eyes showed no change in central vision, fields, fundi, or disks; and all forms of general or special sensations, so far as I was able to determine, were normal.[1] He seemed weak and dazed, and apparently not completely realizing what was going on around him. He made no complaint of anything when left alone, but when I asked him is he had any pain he said "yes," and placed his hand on the left side of the forehead. On percussing the head on both sides, I found an area of tenderness about an inch and a half in diameter, situated on the left side just above the speech center of Broca. He was disinclined to talk, and no attempt was made to test his powers of speech at this time. At my request he was transferred to Denver the same day and placed in St. Luke's Hospital. After putting the patient in the Hospital, he was tenderly nursed, careful and repeated bilateral axillary temperature observations were made, and a record was kept of everything likely to throw any light on the case. The temperature was about equal in each axilla, and usually about .5° below normal. The pulse varied from 72 to 82; respiration from 16 to 24, but it usually remained at about 18.

October 27th: His gait is firm, but there is a little tendency for the body to reel on first closing his eyes while standing, but this passes away in a few seconds. The right hand, while not distinctly ataxic, is used more awkwardly than the left. Dyn. R., 224; L., 200. All leg and arm muscles are strong. A slight tremor is observed in the right hand when he grasps anything very firmly. It is thought that the right thumb and index finger are flexed and extended a little more slowly and awkwardly than the left. He can flex and extend the left index finger without allowing the hand to move at the wrist, but in flexing and extending the right index finger the hand invariably moves at the wrist, although he tries to prevent it. The muscles of the right side of the face appear a little weaker than the left, but the difference is very slight. The tongue deviates slightly to the right in extreme protrusion. There is no wasting of any muscles. Both knee-jerks are a little increased over the normal, the right more than the left, and are decided on reinforcing. Ankle-clonus absent. Tendo-Achillis, R., decided; L., slight. Plantar and cremaster reflexes are absent. Lower abdominal, present; epigastric, R., absent; L., present. The deep reflexes of the arms are increased. There is no trouble with the sphincters of the bladder or bowel. General sensory phenomena are nearly normal. On the lips and tongue on the right side he readily feels the contact of a substance, but two points of the esthesiometer are not differentiated at twice the normal distance. He is unable to localize a substance in gentle contact with the right hand as definitely and quickly as he can with the left. Smell and taste are acute on both sides. Hearing R., ⅔; L., ¼. The tuning fork is heard better in the right ear, even when the left is closed. Central vision, fields, for both light and color, fundi and disks normal. There is an area about one and a half inches in diameter over the left frontal region, in which percussion and firm pressure cause him to wince from pain. The lower border of this area is bounded below by the Sylvian line, posteriorly by the ariculo-bregmatic line, and anteriorly by a vertical line extending upward from the external angular process of the frontal bone. No change in the percussion note is detected over the sensitive area. There is no tenderness over the corresponding portion on the right side of the head. His mind acts slowly, but he reasons fairly well and his conclusions are usually accurate. He laughs, jokes, and seems contented.

On making a systematic examination into the condition of his speech defect, no auditory or visual speech disturbance is observed. There seems to be no form of sensory aphasia. His answers are slow and he has difficulty in selecting his words, but he almost invariably gets the right one. He frequently omits the last syllable of a word, and sometimes one or more words of a sentence. He has no difficulty in thinking in speech. So far as speech-utterance is concerned, there is a slowness in selecting a word, a hesitancy in uttering it after it has been selected, and some difficulty in pronouncing long and difficult words. He repeats simple words after another quite rapidly and without the least hesitation, but if he has to select these same words in conversation, the task is laborious and is performed slowly. He reads aloud writing and printing quite readily, but not infrequently omits and miscalls words. He says that he has no difficulty in understanding what he reads. Writing is the most difficult task for him to perform. He writes his name slowly and distinctly, but it is not written in the bold, easy hand in which he formerly wrote it. His writing seems so remarkable that I determined to study its defects thoroughly. A business letter written by the patient in March, 1894, was written in a distinct and easy hand, although this was written six months after he first experienced difficulty in writing. There were no errors in spelling, and the letter was connected throughout. On obtaining short letters that he had written to his wife during the six months previous to October, 1895, while he was in Denver or different portions of the State, attending to business, I find that, although nearly every letter was well-formed, the spelling was so bad, so many letters were omitted or added, while others were transposed, that I am unable to read his writing. On asking him to read these letters, he reads portions of them, but supplies words. One curious fact is that, no matter how awkwardly a word is spelled, he usually pronounces it according to what he had meant to write. I notice that to few of the letters that he had written during the past six months had he attached his

[1] At first I thought that tactile sensation was lessened over the right hand, but the mental impairment of the patient was too great to enable me to determine this point satisfactorily.

name. This seems strange, as he can write his signature without much difficulty. In writing simple words, such as "dog," "cow," "hog," at dictation, he frequently transposes some of the letters, and is as long in writing a single letter as a child is when it is first learning to write. He can write voluntarily, but it requires about two hours for him to write five or six lines. He can read much of what he has written, but miscalls words, inserts some, and leaves out others. When he makes a mistake in writing he sometimes recognizes it and will try to correct it, but he frequently makes a greater mistake in trying to correct one. At other times he is either indifferent to his mistakes or does not perceive them. The effort of writing is very exhausting on him. He can copy fairly well, transcribing both printing and writing into script. On getting him to spell a word aloud, he always spells it just as he writes it, although in either case he pronounces it correctly.

October 28th: On his admission into the Hospital, the 24th inst., blue ointment was ordered rubbed in night and morning, and he was given potassium iodid in increasing doses. He is much brighter and his headache is much less. It has been observed that he magnifies trifles and delights in talking about little things that relate to himself. He talks much better.

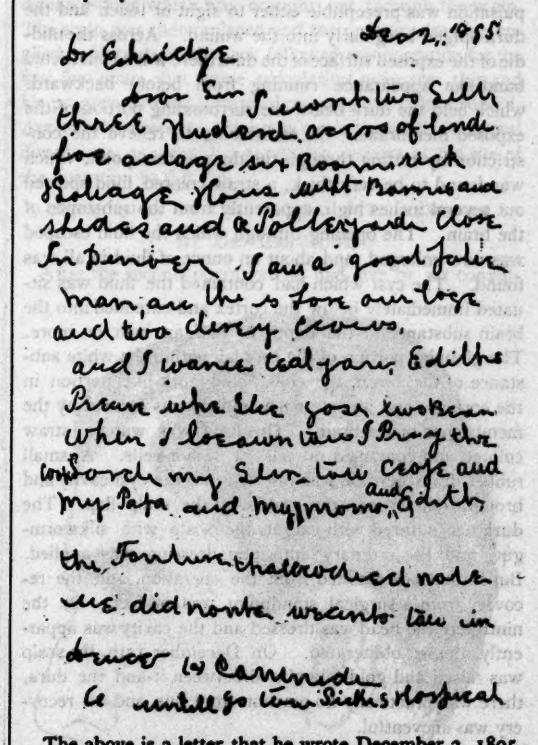
October 30th: The surface temperature of the head is registered and is found to be practically the same on each side. It is found that he has more difficulty in remembering the names of persons and places than in remembering the names of objects. It is noted to-day that his nose has bled almost daily during the week he has been in the Hospital. It occurs in the early morning, and it is only by accident that the nurse discovered it. It is learned, however, on inquiry of the patient, that he has frequently bled from the nose during the past month.

November 3d: He is greatly improved, has had no headache for several days, mind is much clearer, but the defect in writing still continues. He decides to leave the hospital and report at my office daily. During his stay in the Hospital he had written me a letter almost daily. It usually consisted of eight or ten lines, but it required him two or three hours to write these. Sometimes he would begin his letter in the morning, write until he got tired, stop, and finish it during the afternoon. Some days the effort necessary to write was so great that he did not feel equal to the task. On his leaving the Hospital he was to write me a letter daily, giving me his history from early childhood up to the present.

November 7th: Diarrhea troublesome. Potassium iodid and mercury are discontinued. On the 10th he has pain in the left frontal region of the head, the first time for nearly two weeks. His letters are much longer and more connectedly written. On the 20th the medicine is resumed. By the 27th he begins to show decided failure. His head pains him, he seems confused and generally discouraged.

November 28th: He says that he was unable to write me his usual letter this morning, on account of headache and dizziness. The tongue deviates decidedly to the right, but there is no apparent paresis of the right side of the face. It is almost impossible to understand him, as he utters words so indistinctly. With an effort he can read aloud so as to be understood, but he substitutes, transposes, and omits so many words that what he reads does not make much sense. He says that he is nearly crazed with pain. Both optic nerves are pale, or almost white, and apparently show beginning atrophy, but vision and fields remain nearly normal. He is given something to relieve his pain and told to keep quiet for the day.

December 1st: He looks pale and distressed. It is impossible at first to quiet him. He wrings his hands and groans as if in great mental or physical distress. After awhile he tells me that he had not slept any the previous night, and had cried most of the time. He says that his distress was not on account of pain, but because he had revealed to me in his letter of the day before the password of the Woodman's Lodge, and he is fearful lest he will be placed in the penitentiary for it. It is some time before I can convince him that he has written nothing of the sort, and this can be done only by showing him two or three of his previous letters. He then comes to the conclusion that he must have been insane all night. On my advising an immediate operation for the relief of his brain trouble, he readily consents, and seems happy in the prospect of relief.



The above is a letter that he wrote December 2, 1895, three days before the operation. It seems to admit of the following liberal translation:

"December 2, 1895.

"Dr. Eskridge:

"Dear Sir: I want to sell three hundred acres of land for a

house, a six-room brick cottage, with barn, sheds, and poultry-yard, close to Denver. I am a good poultryman. We have four cows, two large and two small dairy cows. I want to tell you Edith's prayer, which she says when she goes to bed, 'When I lay me down to sleep, I pray the Lord my soul to keep and my papa and my mamma, and Edith and whom I love as my own soul.' The furniture that we do not want in Denver I wish to sell. Continued. Until I go to St. Luke's Hospital."

FIRST OPERATION AND SURGICAL ASPECT OF THE CASE.

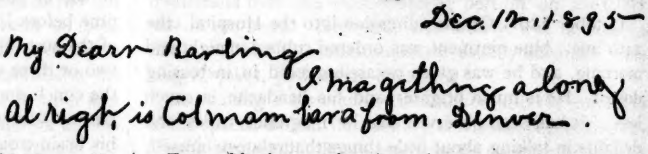
BY DR. PARKHILL.

Operation, December 5, 1895, 11 A.M. The usual methods had been observed in preparing the scalp for operation on the previous day, including the outlining of measurements in nitrate of silver. At the time of the operation these measurements were transferred to the skull by means of the Parkhill skull-marker. A semi-circular flap with the base downward was raised and a three-fourth inch button of bone was removed from over the region of the foot of the second left frontal convolution. This opening was enlarged with the rongeur until it had a diameter of about one and a half inches. No pulsation was preceptible either to sight or touch and the dura bulged irregularly into the wound. Across the middle of the exposed surface of the dura there was a constricted band-like appearance running from before backward, which held the dura below the surrounding portion of the exposed membrane. On endavoring to relieve the constriction by cutting through the dura at this point, which was found to be very thick, a straw colored fluid spurted out several inches high, apparently from the substance of the brain. The opening through which the fluid escaped was now enlarged, and about an ounce of fluid in all was found. The cyst which had contained the fluid was situated immediately below the cortex and extended into the brain substance to the depth of half an inch or more. The globular portion of the cyst lay within the white substance of the brain, the constricted neck-like portion in the cortical, and its external boundary was formed by the membranes of the brain. The fluid was watery, straw colored and contained no pus- or tumor-cells. A small rubber drainage-tube was inserted into the cyst cavity and brought out through the middle of the scalp flap. The dura was sutured with catgut, the scalp with silkworm-gut, and the ordinary antiseptic dressing was applied. But little shock resulted from the operation, and the recovery from a surgical standpoint was perfect. On the ninth day the head was dressed and the cavity was apparently almost obliterated. On December 15th, the scalp was raised and gold foil placed between it and the dura, there was practically no reaction from this and his recovery was uneventful.

CONTINUATION OF THE RECORD.

BY DR. ESKRIDGE.

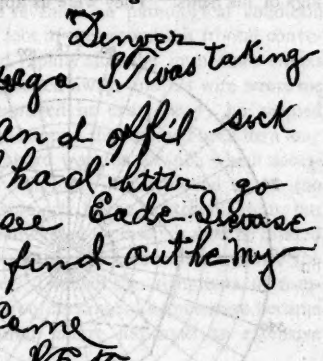
December 5, 11 P.M., about eleven hours after the operation, he is feeling quite comfortable, except a little nauseated. The right lower side of the face is partially paralyzed and the tongue deviates to the right in extreme protrusion. Motor disturbance in speech very marked, but he is still able to think in words and utter a few voluntarily. He can repeat simple words after another. Two days after the operation, the paresis of the right side of the face had passed away, and he could articulate more distinctly than he could immediately before the operation was performed. December 8th. He is still improving and utters long and difficult words quite well. On the 10th he attempted to write, and while he formed his letters distinctly, no sense could be made of what he had written because of the bad spelling. On the 11th his attempt at writing was still a failure. On the 12th he spent about an hour in writing his wife the following:



From this time on he showed a gradual improvement in his writing. On December 30th, he copied several lines of writing, and a paragraph from a newspaper, an extract from a political speech, all into script with scarcely a mistake. On the 31st he wrote me a letter of fourteen lines. It was written connectedly, and is easily read, but there are several gross mistakes in spelling, and a few letters are transposed. Every letter is well formed. During January he wrote me a letter about every second day. The letters are written connectedly, and are comparatively easily read.

February 1st, he struck his head against a wooden box, the sharp corner of the box striking the head at the point where the bone had been removed. The next day he began to suffer from frontal headache, felt dizzy, was nauseated, and vomited. On the 3d and 4th he was quite drowsy, and complained of a numb sensation in the right hand and arm. The hand felt so lifeless that he could not find his pocket with it, unassisted by vision. His vision soon began to fail, he lost flesh, and suffered almost constantly from headache, nausea, and vomiting. It was observed that he was extremely forgetful, and acted foolishly at times. On the 12th he came to Denver and I made a careful examination into his condition. He had lost considerable flesh, looked haggard and depressed. He was suffering greatly from pain in the left frontal region of the head. He was weak, but there was no paralysis of any muscles. The only change in the deep reflexes was an increase of those of the arms. Nearly all the superficial reflexes were absent. All general sensory phenomena normal, except localization and muscular senses. Localization was considerably lessened in the right hand and slightly in the left. Muscular sense was lessened in the arms and hands, but very much greater on the right side than on the left. His mind was much confused, and he did not seem to be able think clearly or

connectedly. Hearing, smell, and taste appeared nearly normal. Central vision, with the right eye, was 4/6; left, counts fingers at eight feet. It was impossible satisfactorily to test the fields on account of his mental confusion. There was well-marked atrophy of each optic nerve, much more pronounced in the left eye than in the right. The arteries of the left disk were very small, but those of the right were nearly normal in size. The letter that he wrote me on February 4th, three days after the injury, did not contain a legible word. A few letters were well formed, but most of them were meaningless scrawls. Meningeal hemorrhage was suspected, and an immediate operation for the relief of pressure on the brain was urged. He was placed in St. Luke's Hospital and operated upon by Dr. Parkhill the following day. On completing the examination on February 12th, I requested him to write me a short letter, and to my surprise he wrote more connectedly, and with fewer errors, than he had been able to do before the first operation. It is given here:



In this letter he tried to say that he was taken ill two weeks ago on Wednesday, "and I was awful sick. I think I had better go down to see Ed Lewis and will find out if my wife has come."

Most of the letters are well formed, and his own name is written in a bold hand, but only the initial letters of his signature are given for obvious reasons.

SECOND OPERATION.

BY DR. PARKHILL.

On February 13th, it became necessary to operate upon him again. The preparation was the same as for the preceding operation, excepting only the outlining of the scalp. On dissecting up the former flap the gold foil was found in position, and it had perfectly prevented the formation of adhesions between the scalp and the dura. Therewas no pulsation. On opening the dura, at the seat of the former cyst, the brain substance had nearly a normal appearance.

The opening in the skull was then enlarged upward and forward. When a half inch of the bone had been taken away, and the dura opened correspondingly, it became apparent that there was a cyst, or membranous-like substance, under the dura. The opening in the skull was further enlarged upward and forward, until it had a diameter approximately of 2½ inches, and the dura incised accordingly. This did not reach the limits of the false cyst. It had a muddy-yellowish appearance and distinctly fluctuated on palpation. The trocar and cannula were passed into it, and there was withdrawn about half an ounce of sero-sanguineous fluid. The cyst was then freely opened with a knife and, upon exploration, it was found to contain quite a quantity of blood clots, perhaps one ounce. It was apparently a closed sac. I then began the dissection of the sac from its seat, by means of the fingers and forceps, and found it extended almost completely over the frontal lobe, reaching down as far as the floor of the anterior fossa of the skull, and dipping into the anterior extension of the middle fossa in the region of the fissure of Sylvius. Internally, it was attached to the falx cerebri. It extended backward over the Rolandic region and the parietal lobe as far as I could reach with the finger and forceps. It was friable, and complete dissection was made only with the greatest possible care. When this was removed, the cortex at its site appeared flattened and depressed to an extent of about half an inch, the brain did not expand after the removal of the cyst-like membrane.

Considerable capillary hemorrhage was encountered during the removal of the false cyst, but this was readily controlled by means of gauze packing and pressure. The cavity was drained, the dura sutured, and gold foil was placed over the dura, leaving only a small opening for the drainage-tube which was brought out through the scalp. The scalp was then replaced and the ordinary dressing applied. Very decided shock followed this operation for the first few hours, but active stimulation overcame this and his progress toward a surgical recovery was uninterrupted. Apparently, however, the brain never regained its normal dimensions, as a decided depression remains at the site of the operation to this day.

CONCLUSION OF THE RECORD WITH REMARKS.

BY DR. ESKRIDGE.

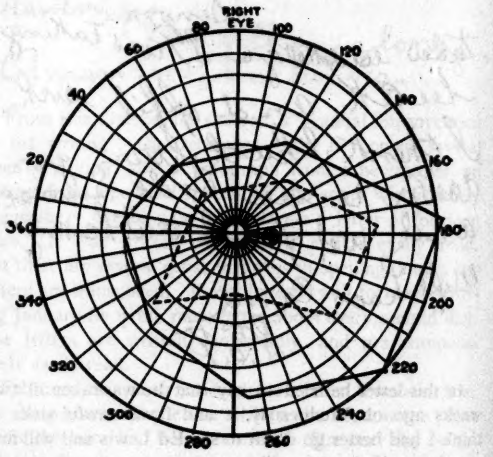
After the second operation he had five or six convul-

The light circle represents the size of the opening in the skull after the second operation. The dark-shaded area near the anterior border of the circle indicates the extent of the opening made at the first operation. About the center of the dark-shaded area the cyst was found.

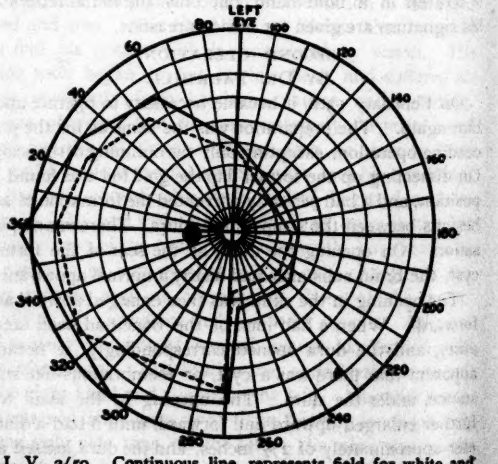
sions, all beginning in the right hand and most of them limited to the right hand, arm, and face, the right leg being involved only on one or two occasions. The left side was not affected. These convulsions began two or three days after the operation, and one and sometimes two occurred on the same day. With the exception of these attacks little of interest from a neurological point was observed until March 6th, nearly four weeks after the operation, when he was able to resume his letter-writing. On that day he spent nearly an hour in trying to write me a letter. The result was: "Elbert, Colo., 6, 1896. My Dear. I Sind." All the letters were well formed. During the afternoon of the same day he wrote me six lines, but with the exception of my name, not a single word is legible, although all the letters are well formed. He had considerable difficulty in articulation at this time, but he seemed to be able to think in speech, and slowly repeat simple words after another. About this time he manifested almost an insane jealousy of every one who spoke to his wife. Although he wrote me a letter almost daily, it was not until the 14th of March that a single legible word was found in them, if the headings of the letters are excepted. From this time on he showed considerable improvement in his writing and speaking. It became evident as time wore on that he was partially demented.

April 14, 1896: There was a slight uncertainty of gait, especially when the eyes were closed, with a tendency to walk to one side, sometimes to the left, at other times to the right. There was slight ataxia in the arms; none in trunk muscles. No paresis or paralysis of any muscles. Dyn. R., 190; L., 184; a decided improvement since the last operation. Knee-jerks, R., about normal; L., decidedly lessened; ankle-clonus absent. Plantar reflexes, R., absent; L., slight. Tendo-Achillis, R., present; L., absent. Deep reflexes of arms slightly increased, a little more on the right side than on the left. All general sensory phenomena normal. Muscular and localization sensations, which had been deficient in the right hand and arm before the second operation, were apparently as good as in a healthy person. Hearing, taste, and smell, presented no points of interest. Eyes, R., counts fingers at eight feet; L., counts fingers at two feet. Roughly testing fields, those of the right eye for objects seemed fairly good, but lessened for color, especially for red, etc. The fields of the left eye were all abolished except in the lower quadrant of the temporal side. The pupils reacted to light and accommodation and all the external ocular muscles were normal. Both disks presented whitish atrophy. The capillaries had disappeared, and both arteries and veins were less than the normal size, the arteries being exceedingly small. It should be noted that at no time had the disks presented an edematous appearance. On making a systematic examination into the condition of his speech no sensory defect was found. He could articulate quite distinctly, and seemed to find little difficulty in pronouncing long and hard words after another. He could read nothing except what was written and printed in very large letters, as his vision was so poor. In reading he would still transpose and substitute, and not infrequently omit words. He could converse fairly well, and experienced no difficulty in repeating words and short sentences after another. He could write voluntarily, but transposed, omitted, and added letters, so it was not easy to make much sense out of what he had written. He invariably wrote as he spelled and *vice versa*, but he pronounced the words correctly, no matter what mistakes he had made in writing or spelling. He could copy well, transcribing both printing and writing into script. He evinced no difficulty in thinking in speech. The only defect in speech detected was that observed on testing his writing and spelling. The primary trouble with his speech seemed his inability to spell. He copied quite well and could write correctly if the words were spelled slowly for him. Although considerable time was consumed in making a complete and systematic examination of his speech defect, only those results that showed deviation from the normal are given here.

On April 23, 1896, Dr. W. C. Bane kindly made drawings of his fields. They were as appear below:



R. V., 3/50. Continuous line represents field for white and blue, dotted line that for red.



L. V., 2/50. Continuous line represents field for white and blue, dotted line that for red.

The case reported at considerable length in this paper presents many points of interest. The first operation was performed December 5, 1895. For about two years prior to this date he had shown difficulty in writing, which, on carefully studying, seems to be due to inability to arrange the letters so that they would appear in the regular order in which common usage has assigned them. At the same time he omitted letters and substituted others. It would appear that his speech defect was an inability to spell rather than an inability to write, as he could copy both printing and writing with scarcely a mistake, transcribing both into script. He copied much more rapidly than he could write voluntarily, but he wrote at dictation just as slowly as he wrote voluntarily, except when the words were spelled for him. If a word was spelled for him he wrote it readily and correctly. Further, it should be noted, that he formed his letters well, except when he was suffering severely from headache, or from other causes.

The first operation revealed no pathological condition beyond a cyst in the foot of the second left frontal convolution. He improved rapidly after the immediate effects of this operation had passed away, and his wife wrote me that her husband improved in every way; he seemed brighter, stronger, and happier than he had been for a long time. He tried to do hard work on a ranch which necessitated lifting heavy weights. This proved to be too much for him as his stomach began to trouble him, but no brain symptoms manifested themselves until he injured his head by striking the unprotected brain against the sharp corner of a box. Then all the symptoms of compression of the brain from meningeal hemorrhage became apparent. The mental failure indicated an extensive lesion.

At the second operation which was performed February 13, 1896, the membrane-like substance, by ocular inspection, appeared so well organized, firm and strong that it was thought probable that a more extensive lesion had existed at the time of the first operation than had been detected and removed. Every portion of the material removed at the second operation was preserved and hardened in Müller's fluid for careful microscopical examination. Dr. E. R. Axtell, pathologist to the Hospital, has just completed the examination and reports as follows:

"May 8, 1896.

"The examination of the logwood-stained sections of the membrane, removed from the cranial cavity of W. E. F., reveals nothing but a mass of small, round cells held together by an intercellular substance and by strings of fibrin. In no section do I find any capillaries. The mass presents no capsule, no trabeculæ of connective tissue. Nowhere are there any areas of caseation.

"The pathologic diagnosis is inflammatory lymph."

The above report of the pathologist seems to establish the fact that the morbid condition found at the second operation was recent and probably dated from the receipt of the blow to the brain, thirteen days before. Had it not been for this untoward accident the patient might have made a complete recovery.

Graphic Center.—The motor center for writing has been supposed by some to be located in the foot of the second frontal convolution. In this connection Mills[1] says: "Destruction of this region, which is just in advance of the area for the movements of the fingers, hand, and other parts concerned in writing, it is supposed, would cause a true agraphia, although no clinico-pathological case fully corroberative of this state has been put on record."

As has been observed we may learn to write with a pen or pencil held between the teeth, with the fingers, or with the toes. It is very improbable that the same center would serve to guide the movements of the head, hand, or foot in writing. The function of Broca's center, seems to be to arrange the words for speech utterance. May there not be a cortical center, the function of which is to register the memory of the arrangements of letters for the spelling of words? This is a process that is gradually and laboriously learned, and there must be some portion of the brain in which the memory pictures of the arrangement of letters in the spelling of words are registered. When the loss of ability to write intelligently depends upon the loss of the ability to spell, as shown in the case just reported, in which the patient could copy correctly and write well when the words were spelled for him, the agraphia is secondary and the fault in spelling the primary symptom.

MEDICAL PROGRESS.

The Pathology of Meat-Poisoning.—As the result of an investigation into an epidemic of meat-poisoning due to the use of contaminated ham VAN ERMENGEM (*Centralblatt für Bakteriologie, Parasitenkunde, und Infektionskrankheiten*, B. xix, No. 12, 13, p. 442) has arrived at the conclusion that the view maintained by most authorities that the animals employed in the laboratory for experimental purposes are immune to botulismus is not correct. He has himself succeeded in inducing, with the ham in question, in animals of various species, symptoms resembling those present in persons made ill by the use of the ham as food. Cats proved especially available for experimental purposes, presenting symptoms quite analogous to those observed in cases of botulismus; marked and persistent mydriasis, alteration of the pharyngeal and bronchial secretions, various partial pareses, manifested, among other things, by prolapse of the tongue, aphonia, aphagia, croupy cough, retention of urine, of feces and of bile, etc. Pigeons presented, in addition to paresis of the wings, interesting paralytic phenomena, such as ptosis, inequality of the pupils, etc. Rabbits and guinea-pigs, as well as apes, proved also susceptible, presenting paretic disturbances after poisoning by the mouth. The conclusion is reached that the pathological manifestations induced by the diseased ham were not due to ptomaines, to the toxic alkaloids of putrefaction. The suspected ham displayed none of the subjective or objective manifestations of putrefaction, while putrid meat failed to occasion similar symptoms, which are attributed to a peculiar change in the meat as a result of the fermentative activity of a special micro-organism designated bacillus botulinus. In addi-

[1] "Nervous Diseases by American Authors," p. 436.

tion, the meat was found to contain bacterial poisons. The organism is a large anaerobic bacillus, provided with cilia and capable of movement. It is pathogenic for a number of animals. and induces symptoms like those seen in animals poisoned with the diseased meat or an aqueous maceration. The toxin produced by the bacillus also gives rise to the same symptoms.

Tracheo-esophageal Fistula of Actinomycotic Origin.—In a communication to the Académie de Médicine, PONCET (*Bulletin de la Académie de Médicine*, 1896, No. 15, p. 403) reports the case of a woman, twenty-eight years old, who came under observation with a perforation between the trachea and the esophagus that had existed about two years and a half. The patient, previously free from pathologic manifestations and without tuberculous antecedents, was suddenly seized with paroxysms of violent cough. Several days afterward there supervened a considerable swelling of the neck, without change in the color of the skin, but with serious threatenings of asphyxia. The diagnosis of deep cervical phlegmon was made, which was soon confirmed by the expectoration of a considerable quantity of pus. From this time the respiratory difficulty disappeared, but when the patient attempted to drink she was seized with paroxysms of cough and appearances of imminent suffocation. For six months aliment, and especially liquids, was given through the esophageal sound. The patient learned that she could swallow liquids by inclining the head strongly backward. She was pale and emaciated, and presented no peculiarity other than tenderness upon pressure along the inner border of the left sternomastoid muscle, about one and a half or two inches above the sternum. A diagnosis of tracheo-esophageal fistula was made, and operation successfully undertaken. Examination subsequently of the discharge that took place from the wound revealed the presence of characteristic actinomycotic mycelium, and inquiry of the patient disclosed the fact that she had frequently partaken of uncooked meat. Further, percussion and auscultation elicited signs of probable actinomycotic lesions at the apex of the right lung, without evidences of pleurisy. The patient was accordingly placed upon treatment with iodids and speedily made notable improvement.

THERAPEUTIC NOTES.

Amelioration in a Case of Progressive Myopathy from Thyroid Medication.—LÉPINE (*Lyon Médical*, 1896, No. 19, p. 35) has reported the case of a man, forty-four years old, who had presented symptoms of idiopathic muscular atrophy for eight or nine years, in which improvement in muscular vigor resulted in the sequence of treatment with thyroid gland, though without influence upon the atrophy. The symptom first noted was a difficulty in arising from the ground while the man was engaged in mining. Then general weakness appeared, the scalpula became alar and the left arm commenced to waste. Subsequently the atrophy involved the lumbo-sacral muscles, the serratus magnus, the deltoid and the biceps on the left side, while sensibility remained undisturbed. Other muscles suffered in like manner, but fibrilary contractions were at no time observed and reaction of degeneration could not be elicited. In standing, which was accomplished with difficulty and required support, the abdomen was protruded and the lumbar curve of the spine was increased. After resort to electricity, and other measures usually employed in the treatment of the myopathies, resort was had to the use of thyroid gland. The fresh gland was rubbed up in a mortar, mixed with a little marshmallow-powder, and administered in cachets, each containing 30 grains of gland substance. During the period of two months an average of 900 grains was taken weekly, the amount for the last week being 1800 grains. Under this treatment the patient soon felt better and was able to use his muscular apparatus with greater vigor; and he improved to such a degree that he declined to remain under further observation. No change was observed in the volume of the muscles, and no bad effects were noticed, except occasional palpitation of the heart when the largest dose was being taken. A similar result was secured in a case previously recorded. The influence of suggestion was safely excluded.

Successful Treatment with Thyroid Gland of a Case of Exophthalmic Goiter in Association with Scleroderma.—GRUNFELD (*Wiener medicinische Blätter*, 1896, No. 20, p. 307) has reported the case of a married woman, thirty-three years old, without special hereditary predisposition, in whom, in the sequence of a profound emotional disturbance, symptoms of exophthalmic goiter made their appearance. In the further progress of the case patches of scleroderma developed in various parts of the body. Other measures of treatment having failed, tablets, each of which contained 3¼ grains of thyroid gland from the calf were administered, at first twice, and subsequently thrice daily. In a short time improvement set in, not only in the symptoms of the exophthalmic goiter, but also in those of the scleroderma, and which was maintained even after the withdrawal of the thyroid gland. Other than slight palpitation of the heart no bad symptoms were observed.

Formalin as a Disinfectant.—WALTER has made experiments to determine the bactericidal power of formalin. His conclusions as published in the *Zeitschrift f. Hygiene und Infectionskrankheiten*, vol. xxi, p. 241, 1896, are as follows:

1. A solution of formalin 1–10,000 checks the development of the bacilli of anthrax, cholera, typhoid, diphtheria, and staphylococcus aureus. Very dilute vapors of formalin have the same action.

2. A one per cent. solution of formalin kills pure cultures of pathogenic germs in an hour. This action is still more marked in dilute alcoholic solutions.

3. A three per cent. solution of formalin disinfects the hands perfectly. Further experiments are required to determine any possible injury to the skin from its use.

4. Formalin powders disinfect without injury in twenty-hours cloth and leather goods.

5. A one per cent. solution of formalin is an instant deodorizer of fecal matter. A ten per cent. solution renders such matter sterile in ten minutes.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, AUGUST 1, 1896.

THE INSULT TO THE PROFESSION.

SOME of our contemporaries who have attempted to follow, as presented in the columns of the NEWS, the position in which the recent events in connection with Bellevue Hospital have placed the profession, are still somewhat in the dark in regard to the exact condition of affairs. The position that the NEWS has taken is to resent the affront that was placed upon the profession and to resist the harmful influence upon the public of the Commissioner's rash and unwise action. The infringement upon the rights of the Medical Board of Bellevue Hospital was properly resented by that Board, and an effort was made to induce the Commissioners to see the mistake that they were making.

At first certain cases were designated in the alcoholic wards as special patients of Dr. Oppenheimer. The visiting physician then on duty expostulated with the Commissioners and notified them that the innovation was demoralizing his service, and asked that if the test of this cure was to be made in the wards of Bellevue Hospital the formula of its composition be placed in his hands and that the experiment be conducted by the regular visiting physicians of the Hospital. The proposition to reveal the composition of the "cure" seemed so preposterous to its proprietor that it was indignantly refused; but in order to allow him to continue his experimentation within the Hospital without friction with the Visiting Board, the specified cases were taken out of the alcoholic ward and all the beds in Ward 33 were set aside for the specific use of the proprietor of the "cure."

When a report reached the Commissioners that two deaths had occurred in Ward 33, they at once addressed a communication to the Medical Board, asking them to investigate the conduct of the experiment and report to them as to the benefits of the treatment, saying: "We are chiefly interested as to whether, as inferred, as public officers we have been instrumental in the death of one and placing in jeopardy the lives of several other patients by permitting the treatment." In reply to this the Medical Board submitted the following:

NEW YORK, July 1st.

To the Honorable Board of Commissioners:

In answer to the communication of June 27th from your Honorable Board to the Medical Board of Bellevue Hospital, we respectfully submit the following:

* * * * * *

In regard to the specific matter referred to in your communication, while we are always ready to investigate any scientific problem presented to us, we are unable to find any logical basis for the investigation of the action of any remedy or remedies, or the efficacy of any method of treatment which does not involve a full knowledge of the composition of the remedy, together with accurate and full details of the proposed plan of treatment; we consequently have and can have no report to make of the specific cases referred to in your communication.

In view of our long public service in your hospitals, we feel justified in deprecating the trial in the hospital of any secret remedy or plan of treatment as opposed to the universally recognized traditions of our profession, and to the best interests of the public and the sick poor under our care.

Signed by the Secretary and President of the Medical Board.

This terminated the communications between the Medical Board and Commissioners in regard to the use of the Hospital.

The Medical Board, however, can take care of itself. With that we have no concern. But the principle involved in this action of the Commissioners is far more important than the administration of any one hospital or any number of hospitals. It strikes at the fundamental doctrine of our profession, namely, that all discoveries of remedies that are beneficial to the human race, when made by one of our number, should be the common property of the whole profession, and should be disseminated as widely as possible throughout the world, and administered by those who make it their life-work to relieve the ailments of mankind.

The mercenary motives underlying the exploitation of this "cure," as exposed in the previous issue of the MEDICAL NEWS, wherein we gave a copy of the charter of the company and the affidavit of its president, that the stock had been fully paid for, must be clear to any sane mind. The fact that the "cure" takes its position simply as one of many others that have been exploited and are being exploited at the present time, is also apparent. It must, therefore, be clear to the Commissioners of Charities, that instead of conferring a boon upon humanity by this wide advertisement of a secret nostrum, they are doing one of the greatest wrongs that it is possible for them to commit. In view of all these facts, we call upon the Commissioners to put a stop at once to the further continuance of this fiasco. They have made the great mistake of their term of office. The mistake has been made clear to them, and the wise action for them now is to correct it as soon as possible.

CAMPAIGN OF THE BOARD OF HEALTH AGAINST FILTH AND DEGRADATION.

THE action taken last week by the Health Department of New York City, in the matter of certain tenements, is gratifying and encouraging to everyone who sincerely desires the limitation of disease and the amelioration of the condition of the poor. Radical, and perhaps severe, it is the only remedy for the evil. The uncompromising policy of this Department in demanding, some years ago, the introduction of water into some filthy and unsanitary tenements belonging to Trinity Church corporation was met by legal action, but the courts sustained the Board of Health. In the present instance, the courts will probably pursue a similar course if litigation should result from this unprecedented action of the Board.

Forty-two rear tenements have been condemned by the Board, and ordered to be vacated and razed to the ground. Most of these houses are situated in Cherry, Mulberry, Thompson, and Greenwich streets and in West Broadway. Altogether they afford accommodations for about 1700 persons. During the past five years the average death-rate has been as high as seventy-five per thousand in one of the Mulberry street rookeries, while in the whole city the average annual death-rate is only twenty-two per thousand. In one double house in Cherry street 472 people were crowded together without air or sunlight. In many instances but six feet of space intervened between the front and rear buildings, and in several houses direct sunlight had no access to any of the rooms.

It is surprising that human beings will consent to occupy such nests of filth and breathe such a defiled atmosphere as did the disease-threatened tenants of the condemned structures; but it is an established fact that certain people prefer such quarters, and that these people are at once the prey and the distributors of many infectious diseases and the foster-parents of much criminality. No one should be allowed to live in such reeking holes, for mental and moral debasement must result, with a swift corollary of crime. The Health Department is convinced that sunlight, together with soap and water, will accomplish for these wretched beings what no other agency can accomplish.

It gives us pleasure to learn that the Board contemplates the condemnation of a hundred similar houses, now under investigation. The influence of every member of the profession should be enlisted on the side of the Health Department, should occasion arise for sustaining its course.

SOME LITTLE-RECOGNIZED FORMS OF LITHEMIA OR "LATENT GOUT."

TEN or fifteen years ago nothing was commoner than to read or hear the statement in professional works and gatherings, "We have very little gout in any form in America," and many

were the theories advanced to account for our comparative immunity and the special liability of our English cousins, in most of which "the wine when it is red" was, as usual, the chief scapegoat, and our "simpler and more temperate habits" our safeguard, the thesis usually ending either with a smug little moral tag and tribute to Miss Willard or a reference to "luxurious and effete despotisms." So widespread and firmly rooted was this connection in the popular mind that in some Western prohibition communities a statement to a patient that he had gouty trouble was resented as an aspersion upon his moral character, and not unfrequently cost the doctor his case. However, we know better now, and are rapidly coming to doubt both the fact and its explanation, as several of our best authorities assert, that alcohol has very little to do with the causation of gout, while we are recognizing on every hand a multitude of morbid conditions, which are of gouty or lithemic origin. But, first of all, a few words as to the terms which we are using.

We regard "gout" and "lithemia" as practically synonymous terms, the latter simply being the wider of the two, and including both the "frank" and the "latent" gout of the older authors. We prefer to use the latter in discussing these subjects simply for this reason, and because gout has become so firmly associated with a red and swollen great-toe, that its application to milder or less obvious forms of the diathesis is apt to cause confusion. Next we must frankly admit that the term "lithemia" is not a chemical, but a clinical one, and stands for the presence of those substances or changes in the blood-plasma which are accompanied by uric acid and the urates. The latter substances are responsible probably for only a part of the disturbances due to this hemic state, but are the only factors readily recognizable and calculable, and hence serve as a convenient index and criterion of the whole group; something after the manner of the CO_2 of vitiated air, of the sulphureted hydrogen of sewer-gas, or of the urea of uremia, although, of course, much more actively concerned than any of these substances.

As to the essential nature of this condition, we shall simply improve upon the suggestion of Garrod and define it briefly as a reversion or falling back on the part of the cells of the liver primarily, and of the skeletal muscles secondarily, to a lower stage of metabolic activity (avian or reptilian), resulting in the production of uric acids, its salts, and other extractives associated therewith, in place of the urea group. As to its causes, they are legion; *any* influence which lowers the vital tone of the organism, as a whole, may provoke it. Nor is its occurrence by any means confined to the human species. Our first cousin —dietetically—the pig, not infrequently suffers from the deposit of tophi, while various birds, especially parrots, develop similar deposits. The interesting thing about bird-tophi is that they consist of the metabolic product of a still lower ancestral stage, guanin, which is the normal urinary excretion of fish and mollusks.

A process which has such deep and widespread roots as this in our past history might naturally be expected to be wellnigh universal, and such is actually the case. Instead of lithemia being rare in America, we venture the assertion that it is by far the most frequent, single pathologic alteration which we meet with in our practice.

Sydenham's witty dictum that gout is the "*morbus dominorum et dominus morborum*" is as true to-day and here, as in England in his time. 'Tis true, it doesn't often advertise itself by attacking the great toe, but milder forms of the very same process are simply innumerable. It appears under as many titles as a Chicago divorcée. For instance, a large proportion of the cases of our "national disease," dyspepsia, are not true disease of the stomach at all, but simply gastric manifestations of the lithemic state and will completely disappear when this latter condition is removed. A large majority of our neuralgias, headaches, and migraines own the same parentage. About all that we really know of rheumatism is that, outside of the acute articular variety, two-thirds of it is gout. The muscular variety is a beautiful case in point. The term makes a beautifully neat, soothing, and satisfying diagnosis, but reminds one of Agassiz's student's definition of the crab as "a small, red fish, which walks backward," which, as the professor commented, was an excellent definition, but slightly defective in

one or two particulars, inasmuch as a crab is not a fish, does not walk backward, and is not red until after it is boiled. Whatever else muscular rheumatism may be, it certainly is not rheumatism, nor has it anything to do directly with the muscle-cells. It is surprising how many cases of chronic diarrhea, even of the "army" variety, in members of the G. A. R., will yield to anti-lithemic treatment, while as to irritable bladder, Carlsbad lithia waters and a suitable diet will be found almost a specific in many cases, not only in men of all ages, but even in young and nervous women supposed to be suffering from "displacements." Any laryngologist of experience will tell you how often in his patients he recognizes the "purple throat," a deep garnet-red pharynx, with a bluish tinge about the palate and fauces, which is the local manifestation of uric-acidemia, and how often even chronic laryngitis is relieved by a thorough "flushing" and small doses of the iodids.

In eczema, the skin specialist regards diet and the correction of any disturbances of renal metabolism as second only to the removal of all local irritation; while "eczema of the capillaries," as Stockton has well called the "interstitial" form of that dread process, Bright's disease, appears to be almost inseparably connected with precedent lithemia as locomotor ataxia is with syphilis. We are well aware that these are sweeping claims and that the domain of this "Pandora's box" shades by such insensible gradations with that of the purely and directly intestinal toxemias that it is hard to decide which is the chief or causal factor in many of these cases. Yet it is our deliberate conviction that this "reversionary" process is one of the commonest disturbances which occur in our tissues, as, indeed, was to have been expected on evolutionary grounds, inasmuch as there could be nothing easier for our muscle- and liver-cells than to fall back one ancestral stage in their metabolism.

The general line of treatment adopted bears out this view. If it could be compressed into one sentence, it would be the old classic prescription to "live on a shilling a day and earn it." Exercise and sunshine come first of all. Keep up all our tissues to the full mammalian standard of metabolism. Then the next great vital necessity, water, and lots of it, in the form of Carlsbad or Friedrichshall, at first for an alimentary flush, and of lithia or strontia waters for a renal one later, if your taste prefer, but the H_2O is the chief thing. Let the diet be as nearly of the "field-hand" variety as the appetite will take, *plenty* of meat, fresh vegetables, and sour fruits, and very little starch or sugars. Sour wines, especially claret, bitter beer, and whiskey up to the "food" limit, if your patient is anemic; it is the fermentable sugars in port, madeira, and ordinary beers that do the mischief, and *not* the alcohol. A spoonful of strawberry jam or a slice of gooseberry tart will provoke an outbreak in a gouty subject as promptly and surely as a glass of port wine.

As for tonics, anything that will whip the cells up to the mammalian level is in order; musk, arsenic, strychnia, and, chief of all, that grand old crystallized sea-breeze, which carries our cells back like the echo of a forgotten song to the days of their sturdy, happy marine childhood on the salt sea beach—potassium iodid.

WOODS HUTCHINSON, M.D.

ECHOES AND NEWS.

Secondary Diphtheritic Tests in the Public Schools of Paris.—The Prefect of the Seine has recently addressed a circular to medical inspectors of schools, calling upon them to supply in addition to the usual certificate of recovery of scholars from diphtheria, another issued by the Bacteriological Service of the City of Paris, affirming the absence of Loeffler's bacillus from the mouths and throats of those same children previous to their readmission to school.

Election in the Royal College of Surgeons, England.—On July 9th the Royal College of Surgeons elected for president, Sir William MacCormac, and for vice-presidents, Mr. Charles N. Macnamara and Mr. John Langton. These are all surgeons of distinguished ability, and their choice must give general satisfaction. It is a source of much pleasure to the many friends and admirers Sir William acquired during his visit to America to note that such honor has been so worthily conferred.

A Graduate but not a Doctor.—The Edinburgh College of Physicians, following the example of her Irish neighbor, has appended to her laws the following: "The diploma granted by the College shall not entitle the holder, by virtue of such diploma, to assume the title of Doctor, or to append to his name the title of Doctor of Medicine,

or the letters M.D., or other abbreviation which might suggest that the holder had obtained the degree of Doctor of Medicine from the University."

Cholera Among the English Troops in the Soudan.—The death of Major Owen, from cholera, while in command of the Arab scouts, together with a limited number of cases of the same disease among the English soldiers, makes a picture with no reassuring features for the expedition. At least seven hundred cases have occurred in the Nile valley, outside Alexandria and Cairo. There are grounds for fear of a possible disaster which may prove worse than defeat.

Not Responsible for an Error of Judgment.—It has been recently decided by the English Court of Appeals that a physician cannot be held responsible for an error of judgment, provided he can show that reasonable competency and care has been brought to the case. The case in question was one in which Dr. Russell had been called to examine a lady, against whom suit for divorce was afterward brought, upon his report of her marital incompetency. She denied the existence of such cause, and brought an action against him for damages, in which the above-mentioned decision was given.

A Bullet in the Brain Located by the X-Rays.—MM. Brissaud and Loude presented to the Académie des Sciences of Paris a skiagraph of the head of a man who presented a variety of most interesting neurological symptoms resulting from a bullet which he carried in his brain. Although not clearly defined, owing in part to involuntary movements during the exposure, the missile was clearly distinguished in the exact location in which both the nervous manifestations and surgical evidences had placed it. If we are not mistaken, this is the first time a bullet has been pictured in the living human brain.

Changes in the Faculty.—At a meeting of the faculty of the Kentucky School of Medicine of Louisville, Ky., held on the 21st day of July, by a vote of five to one, the chairs occupied by Dr. W. H. Wathen and Dr. M. F. Coomes were declared vacant. It has been an open secret among the profession for a number of years that there has been friction among the faculty of this school, and some credence was given this when about a year ago it became known that Dr. Wathen had been deposed from the position of dean of the faculty, which he had occupied for a number of years, and that Dr. S. E. Woody had been elected in in his place.

The Tubercle Bacillus and the X-Rays.—M. Lortel has given the results of his efforts to determine the influence of the X-rays upon tuberculosis. He injected eight guinea-pigs with a culture taken from another pig. Three of these, after three days, were daily subjected to the influence of the Crookes' tube upon the point of injection for one hour over a period of fifty-four days. At the end of forty-five days the other five animals showed suppurating abscesses about the place of injection, while the three remained healthy and increased in weight. This is interesting, as no other experimenter (outside of Chicago) has found any appreciable effect exerted by these rays upon the life or growth of germ life.

Hospital Infection by Tuberculosis.—Dr. Paul P. Prendergast, who died in Brooklyn, on July 10th, must be regarded as the victim of a hospital infection by tuberculosis. This young physician was graduated, in 1894, from the College of Physicians and Surgeons. Until about one year ago, he had been in good health; he was fully six feet in height, and weighed two hundred pounds. After graduation, he attended most assiduously to his duties at the hospitals, at the Sloane Maternity in New York, and at the St. Mary's and Seney Hospitals in Brooklyn. He sought relief in the Adirondacks and California, but his efforts to recover were unfortunately fruitless.

The Kind of Medical Men to Avoid.—The one who has acute exacerbations of insanity when exposed to any new fad; the one who is always successful with all his difficult operations; the one who always sees hundreds of cases of a rare disease; the one who can always match your case and improve on your treatment; the one who always finds you have omitted something in the examination of your case; the one who thinks he can talk well and is always ready to discuss any paper of the evening; the one who is always first to do the new operation; the one who is in a chronic fear of his being anticipated in his important discoveries; the one who, in consultation, feels it is his conscientious duty to explain to the patient why he differs from the attending physician.—*Canada Lancet.*

Diphtheria Antitoxin in Great Britain.—Appreciating the apparent fact that in the British Isles the serum treatment of diphtheria had not attained the results reported from the Continent, *The Lancet* conceived the idea that it was due possibly to a difference in the antitoxin, and to decide the question caused a long and careful investigation to be made which abundantly substantiates the suspicion. It was thus shown that few, if any, of the English preparations were reliable in strength, in which particular wide variations were discovered. Great credit is due *The Lancet* for the good work thus accomplished. We append the conclusions drawn from this report: "(1) That a common standard of estimating the strength of antitoxin serum should be agreed upon by the English manufacturers. (2) That no serum should ever be sent out containing less than sixty normal antitoxin units per c.c. (3) That antitoxin serum of higher strengths must also be provided to meet the requirements of treatment in more severe cases of diphtheria. (4) That every sample of antitoxin serum sold should be plainly marked with the antitoxic strength of the serum (number of normal antitoxin units per c.c.), the quantity of serum present in the bottle, and the date of issue."

Obituary.—Dr. Edward Gutmann, who died in this city on July 21st, was born at Halle, Germany, in 1828, and was educated at the University of Berlin. He came to this country in 1854 and practised medicine in this city until 1869, when he gave up his practice to travel abroad. The next few years of his life, Dr. Gutmann devoted to the study of ancient and medieval art, and in his search

for rare pictures, books, and statuary, he visited Europe, Asia, and Africa, where he made a special study of Egyptian art. Dr. Gutmann spent several years in Rome, where he gathered a collection of books of art, particularly those of the Renaissance period. On his return to this city he published a treatise on "The Sarcophagus and the Grave Monuments of Old Greece and Rome." This book was issued by subscription, and among the subscribers were Queen Victoria, King Humbert of Italy, Emperor William of Germany, and many other distinguished persons throughout Europe. The only copies sold in this country were to the Smithsonian Institution and to Johns Hopkins University. Dr. Gutmann was a member of the Natural History Museum, the Metropolitan Art Museum, and the Freundschaft Club, and has probably bequeathed his splendid library of over six thousand volumes and his art collection to the New York Metropolitan Museum of Art.

The Hazards of the Medical Life Commercially Recognized.—According to the *Insurance Herald*, certain insurance companies are about to assume different relations toward medical men as "risks." The conviction is gradually forcing itself upon managers of accident insurance companies that physicians are extra-hazardous risks, and do not belong in the preferred class, where they are at present generally listed. A comparison between the probable hazards incurred by a doctor and a member of any other profession or business classed as preferred, illustrates this point at a glance. Possibly the most objectionable feature about the physician's hazard is that many injuries which are slight and of no consequence to other people, are total disabilities to doctors, and consequently causes for indemnity claims. For instance, a doctor performing a surgical operation, injures his finger or hand. While the injury may be in itself slight, it is very likely to be such as to prevent the doctor from resuming his occupation until the wound is entirely healed, and during the interval the company is required to pay indemnity. Then there is the "horse hazard." A horse and buggy is a necessity to every doctor with any practice at all, and he is thus subject to runaway and collision accidents to an unusual degree, owing to the incessant use of the horse, and the rapid pace at which a doctor is usually obliged to drive.

Reform in New York Charities that Receive Over $20,000,000.—Dr. Stephen Smith and Dr. E. V. Stoddard, are members of a newly appointed committee of inspection of charities, under the New York State Board of Charities. Their duties relate largely to the economic expenditure of moneys, bestowed by the State upon hospitals, dispensaries, and other charitable institutions. Under the new State constitution, supplemented by laws passed last winter, it is provided that the State board of charities "shall visit, inspect, and maintain a general supervision of all institutions, societies, or associations which are of charitable, eleemosynary, correctional, or reformatory character, whether State or municipal, incorporated or not incorporated, which are made subject to its supervision by the constitution or by law." The committee of inspection will investigate all charities in Brooklyn and New York, both public and private, and will organize a system of direct supervision over all charitable work. The State has appropriated $10,000 for this year's work. The charitable donations last year in New York State, public and private, amounted to the immense sum of $23,000,000. No other State spends nearly as much. It is to provide for the wisest distribution of this money that the present supervision has been provided.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, Monday, May 18, 1896.

The president, JOSEPH E. JANVRIN, M.D., in the chair.

LOUIS F. BISHOP, M.D., of New York City, presented a case of

PRIMARY PLUGGING OF THE BRACHIAL ARTERY

in a girl fifteen years of age. The trouble had come on quite suddenly, and was characterized by a total loss of tactile sensibility in the hand on the affected side. There was no radial pulse, and no arterial pulsation up to the upper third of the arm, where a cord-like hardness could be felt. There was unquestionably a neuritis of the arm, due to some traumatism, and one result produced was a dry gangrene of two of the finger-tips and of the thumb. He had arrived at the conclusion that this was a case of primary plugging of brachial artery. At the present time collateral circulation seemed being gradually established, and there was a slow amelioration of the symptoms. There was apparently no cardiac disease, and the patient was not suffering from diabetes.

CHARLES J. PROBEN, M.D., of New York, read a paper on

EXPERIENCE WITH PILOCARPIN IN THE TREATMENT OF UREMIA OF BRIGHT'S DISEASE.

In the condition named, the desirability of temporarily acting on the skin had long been recognized, and when jaborandi, and its active principle, pilocarpin, were brought to the attention of the profession, it was hoped that a very useful addition to our therapeutical armamentarium had been gained. It was soon found, however, that the dangers attending the use of this agent, militated very seriously against its general employment. Having described the physiological affects of pilocarpin, he stated that the depression of the heart's action produced by it was very similar to that caused by nicotin. It had been found that the toxic effects of the drug were best overcome by atropin, and the antagonism between the two agents was now well established. In cases of atropin poisoning, he thought pilocarpin should be more frequently used than was now the case, although the fact could not be denied that atropia was more efficient in pilocarpin poisoning than pilocarpin was in atropia poisoning. Where toxic effects resulted from the administration of pilocarpin, the ordinary circulatory stimulants should also be resorted to.

Dr. Proben then referred to a number of authorities,

among them Fordyce Barker, who had favored the use of pilocarpin, and who then had fatal cases in patients suffering from puerperal uremia, Henrop, Singer, Loomis, and Strümpel. Many fatal cases were also recorded in general medical literature. The question then arose, were we justified in continuing the use of this agent? There was still a division of opinion on this subject, and Osler, who after giving it up entirely, had more recently returned to its cautious employment, in doses of from one-eighth to one-sixth of a grain. Dr. Proben expressed the opinion that probably the only cases in which pilocarpin could be used with safety were those in which there was simple hypertrophy of the heart, with a strong action. The contractive power of the heart was what we had to depend upon as a guide for its administration. Its employment was certainly contraindicated if there were present any dulness over the lungs, or pneumonia, emphysema, pleurisy, coma, fatty degeneration of the heart, or cardiac insufficiency. To ascertain the condition of the cardiac muscle, auscultation with the binaural stethoscope was called for, and any impairment of the first sound of the heart should make one hesitate to use pilocarpin.

At this point he said that he would digress for a moment to express his conviction that in the intravenous injection of hot saline solutions, as advocated by Dr. Beverly Robinson and others, we had an agent which was far more efficient, as well as safer, than pilocarpin in bringing about the relief sought for in anemic cases. He had now used this in two cases, and he believed it was in every way preferable to pilocarpin.

He then proceeded to give the details of three cases in his experience in which pilocarpin had produced fatal results. The first was that of a female, forty-two years of age, suffering from chronic uremia. The heart and lungs were apparently normal. One-tenth of a grain of pilocarpin hydrochlorate was injected subcutaneously. Collapse from cardiac paralysis resulted and death ensued in the course of an hour, notwithstanding the most active efforts to avert the catastrophe. In the second case, one of chronic interstitial nephritis, death from collapse from cardiac paralysis resulted within three hours after the hypodermic use of pilocarpin. In the third case, in which the patient was also suffering from cirrhosis of the liver, fatal collapse likewise resulted. In this instance one-fifth of a grain of pilocarpin was injected. In none of these cases were there any contraindications to its use, and yet a rapidly fatal result followed in all of them. On the whole, therefore, while he believed that in some cases pilocarpin could undoubtedly be given with benefit, he thought that, on account of its marked depressant effect upon the heart's action, its administration should be banished from the treatment of Bright's disease.

Dr. Proben then went on to say that within the past week, after his paper had been finished, he had met with a case of puerperal eclampsia. Labor came on about two weeks before the expected time. He was called to the patient after one convulsion had occurred. He summoned assistance, administered chloroform, and proceeded to deliver with forceps, although the os uteri was not yet fully dilated. After delivery there was another convulsion. The urine was found to contain about twenty per cent. of albumin. The patient seemed to be doing well, and he finally left her. In the middle of the night, however, he was hastily called, and found that she had had another convulsion and that she had scarcely passed any urine at all. He at once opened the median cephalic vein, and injected two quarts of a hot saline solution. The effect was most happy. Within two hours she passed a considerable quantity of urine, and she had no more convulsions. During the twenty-four hours following the saline injection she passed no less than 109 ounces of urine, while in the preceding twenty-four hours she had passed only 2 ounces. His experience in this case had confirmed him in the conviction that we had in this procedure a resource more reliable than any drug.

DISCUSSION.

J. LEWIS SMITH, M.D., of New York, said that though he had had no experience with pilocarpin in adult life, he had records of a number of cases of scarlatinal nephritis in children, in which he had employed it. Notwithstanding the fatal results noted by the reader of the paper and others, he believed that it was in reality a very useful remedy, and that in time it would come to be given in such a way that it would be generally recognized as such. Some time ago he remembered a well-known practitioner remarking to him that he would never use pilocarpin again. The reason that he gave for this was that he had found that it was liable to produce a kind of bronchorrhea, which was almost always fatal. Not long after he heard this remark, Dr. Smith was called in consultation to see a child, two years of age, who had recently had scarlet fever. The attack was not a severe one, but it was followed by kidney disease, which resulted in general anasarca. A single dose of pilocarpin was administered, and as a result of this bronchorrhea was rapidly produced, accompanied by the most intense dyspnea, so that the patient soon succumbed.

On the other hand, he had seen other cases in which the remedy acted with the most happy effect. It was, therefore, a sword with two edges, and he hoped that a way would be discovered by which it could be administered in comparative safety. Perhaps if it were given in connection with some such heart stimulant as strychnia, in large doses, its dangerous effects might be, to a great extent, obviated. Dr. Smith then proceeded to give the details of two or three cases in which great benefit was derived from the use of pilocarpin. One of them was as follows: A child, five years old, who had had a severe attack of scarlatina, and was apparently convalescing admirably, when general anasarca rapidly set in. The attempt was made to administer infusion of digitalis and acetate of potassium, but this was for the most part vomited, as the stomach was exceedingly irritable. Only two ounces of urine passed in twenty-four hours, and uremic convulsions ensued. The pulse was quick and full, and the axillary temperature 103. The convulsions, after lasting an hour, were controlled by potassium bromid and chloral. One thirty-second of a grain of muriate of pilocarpin was then ordered every three hours. This remedy was not vomited,

and it had the effect of causing free diaphoresis and an increase in the quantity of urine passed. Afterward the child had eclampsia occasionally, but the convulsions were readily controlled by chloral hydrate administered by the rectum. She did not vomit again, and gradually recovered under the use of pilocarpin, which was afterward given at six instead of three hour intervals.

Other simllar cases were referred to, and Dr. Smith said that in these instances the patients under ordinary methods of treatment would probably have died. The only fatal case which he had seen in a child was one he had met with in consultation, where death seemed to be due to bronchorrhea. In general, he thought the danger in the use of pilocarpin was probably more from the accumulation of serum and mucus in the chest than from the depressing effect of the drug upon the heart.

J. BLAKE WHITE, M.D., of New York, said that his experience was a little different from that of either Dr. Proben or Dr. Smith. While he believed that pilocarpin was a dangerous remedy, which should always be used with great discrimination, personally he had never seen any bad effects from it. His own observation was perhaps more limited than that of Dr. Proben, but he had employed the remedy in rather a different way. It had been his practice to give only from one-twelfth to one-sixth of a grain, always hypodermically, and he had usually combined with it some cardiac stimulant, such as strychnia or digitalis. It seemed to him that in the cases of Barker and Singer, referred to in the paper, the cerebral and pulmonary edema noted was not necessarily due to the drug, but might perhaps have resulted from the disease itself, as Rees had pointed out, that such effusions sometimes occurred in uremia. In Dr. Proben's own cases the patients appeared to be enfeebled, and hence not able to resist the depressing effects of the remedy. It was a singular thing that children were specifically tolerant of pilocarpin, and that it was probable that it could be more safely given to them in proportionally larger doses than was the case in adults.

He believed the remedy to be a very valuable one, but on account of the danger connected with its use, as he had said before, it should always be employed with great discrimination. In order to produce the best effects of the drug he had always found it necessary to assist diaphoresis by wrapping the patient in a blanket. Another point of importance was, that after the diaphoresis had been established it should not be allowed to subside too suddenly, but that the recurrence to normal should be accomplished gradually.

DR. PROBEN, in closing the discussion, said that the tolerance for pilocarpin in children was now pretty well established, and that, as a rule, they bore the remedy much better than adults. As to the so-called case of bronchorrhea, referred to by Dr. Smith, he believed that the condition was probably simple edema of the lungs, due to cardiac paralysis. In cases where pilocarpin produced toxic effects the serum was exuded into the parenchyma of the lungs, and not simply into the bronchi. He thought the administration of stimulants, such as alcohol and strychnia, in connection with pilocarpin, a good idea. Atropia was the best antagonist of the drug, but unfortunately it could not be used on account of its action in suppressing diaphoresis. As to Barker and Singer's cases, he thought that it must be admitted that the rapidly fatal results were really due to the pilocarpin, as modern authors did not endorse the old idea that edema of the brain was a natural result of the disease. As in the cases, in which pilocarpin was indicated, it was of the utmost importance that rapid results should be accomplished. He believed that the drug should always be administered hypodermically.

WM. M. LESZYNSKY, M.D., of New York, read a paper upon

THE DIAGNOSIS AND TREATMENT OF PARALYSIS OF PERIPHERAL ORIGIN.

He said that his special object in preparing this paper was to emphasize the great practical value of electricity in the matter of diagnosis. It was based on nearly four hundred cases, many of which had been under observation for a number of months. The field was such a large one that he proposed to confine his remarks to facial paralysis and paralysis of the upper extremities. Given a case of paralysis, it was very important to determine as speedily as possible whether it depended on a lesion of the brain, a lesion of the spinal cord, or was of peripheral origin.

The most common cause of peripheral paralyses was traumatism, either from direct wounding of the nerve, from pressure during sleep, or from refrigeration. Paralysis affecting the face, but not involving any other parts, was rarely of cerebral origin. When facial paralysis was due to a lesion of the brain it affected lower branches of the nerve merely while facial paralysis of peripheral origin affected all the branches. In peripheral facial paralysis the faradic irritability of the muscles was either impaired or entirely lost within ten days. The ordinary galvanic formula was also reversed, the anodal closing contraction being greater than the cathodal. Under these circumstances we had what is known as the reaction of degeneration. The application of electricity thus enables us to make a differential diagnosis. The reactions noted indicated some lesion either of the nucleus or in the course of the nerve trunk.

In the treatment the galvanic current should be used. In almost all cases, however, a greater or less improvement gradually resulted, no difference what treatment was employed. In some cases of fascial paralysis there was an exposure of the eyeball, and it was highly important that measures should be taken to protect the latter from injury when this was the case. Otherwise, ulceration or perforation of the cornea might result.

In peripheral paralysis of the upper extremity, the brachial plexus might be affected in a number of its branches, or sometimes only in one. A case was related in a male of thirty-eight, in which all the groups of muscles of the arm and shoulder were profoundly affected except the biceps group, which was only slightly implicated. Almost complete recovery took place in two years. The paralysis met with in infants as a result of pressure during parturition was sometimes mistaken for disease of meningeal origin. In a few weeks, however, by means

of electricity, a differential diagnosis could be made. Paralysis of the musculo-spiral nerve, producing wrist-drop, was usually produced by pressure, and was common after profound alcoholic stupor. It might be mistaken for lead paralysis, but in the latter one side was usually affected before the other.

Peripheral paralyses could, for convenience, be divided into three classes, *first*, slight, *second*, medium, and *third*, severe. The slight form would recover, without treatment, in about fourteen days. In the medium form, with partial reaction of degeneration, two months were required; and in the severe form, with more or less complete reaction of degeneration, nine months. The question naturally arose, has electricity really a beneficial effect in these cases? Dr. Leszynsky said that, judging from a pretty large experience, he felt confident that the process of regeneration is materially expedited by the judicious use of electricity. Discrimination, however, should be used in its employment, and care should be taken that the muscles should not be over-stimulated by too strong a galvanic current. The electrical treatment should be commenced within two or three weeks after the occurrence of the paralysis, unless severe neuritis were present. He did not think *suggestion* of much value in this class of cases, and certainly it was of no use in young children. In traumatic division of a severe operation, procedures should at once be taken. In addition to electricity, massage and other appropriate measures should be employed, and in certain instances mechanical appliances were called for.

The paper was discussed by Drs. H. W. Berg, L. F. Bishop, and J. Blake White, and the discussion was closed by Dr. Leszynsky.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, May 13, 1896.

The President, DR. JAMES C. WILSON, in the chair.

SILAS UPDEGROVE, M.D., of Philadelphia, read a paper entitled

NECESSITY FOR THE STATE TO DEMAND THE ADOPTION BY THE COLLEGES OF A MORE UNIFORM STANDARD OF EDUCATIONAL REQUIREMENT FOR THE DEGREE OF DOCTOR OF MEDICINE.

It was stated that a recent application to the Assembly of the State in regard to the matter had resulted in the establishment of three boards instead of one for the examination of candidates for a license to practise medicine. To justify the creation of more than one board it was claimed that each was to represent a certain school or method of cure. All diseases, the speaker remarked, might be divided into two classes, viz., the curable and the incurable. Diphtheria was an example of the curable class. Cases of diphtheria get well under treatment, or even without treatment. Other do not get well under any circumstances. No formula is known that can be adopted as a method of cure for all cases of diphtheria or other disease of the class to which it belongs, and no reputable college should adopt a formula of cure as the basis of educational requirement for the degree of doctor of medicine. The speaker compared the requirement of a knowledge and acceptance of the law of similars by medical colleges with that of an acceptance and knowledge of the Ptolemaic system of astronomy by other institutions as a condition of a degree. Dr. Updegrove declared that in order that there be true medical education there must be some recognized authority by the State upon medical questions. This was so, he said, in other departments. In law, the Supreme court is the authority; in astronomy, those learned in astronomy; then, why should not the medical profession of the world be accepted as authority in declaring that a universal method of cure has not been established? Dr. Updegrove said that a world of trouble might have been saved a half century ago if the medical profession had been recognized as an authority in declaring against the law of similars. He also referred to the absurdity of submitting legal questions to the decision of the public instead of to a legal tribunal; but, he added, medical questions were passed upon and decided by those who had no knowledge of medicine. To further emphasize the absurdity the speaker gave some decisions of the Supreme Court regarding disputed questions. One case was in regard to calling a homeopath a quack. The court assumed that the homeopath had a system, and did not assume that this system had a basis of false pretense, and a fine of one hundred dollars was imposed upon the defendant. Another suit was for malpractice. The court ruled that if there are distinct schools of practice, and a physician of one of the schools is called in, his treatment is to be tested by the general doctrine of his school. In one case, tried in the State of Iowa, the court ruled that a physician is expected to practise according to his professed and avowed system. The court further said that there is no particular system of medicine established or favored by the laws of Iowa, and as no system is upheld, none is prohibited. The regular system is still regarded by the law with no partiality or distinguished favor, nor is it recognized as the exclusive standard or test by which other systems are to be judged.

J. SOLIS-COHEN, M.D., of Philadelphia, exhibited a

TONGUE DEPRESSOR

by means of which the interior of the larynx and treachea can be inspected directly without the aid of a laryngoscopic mirror. The instrument was a device of Dr. Kirstein of Berlin, who called it an autoscope, but the term is unfortunate, the word meaning examination of oneself. A better name for the instrument would be ortholaryngoscope. In reality, the device was a tongue depressor. The difficulty in making a direct examination of the larynx is due to the presence of the epiglottis. To overcome this the laryngoscopic mirror has been deviced. The ortholaryngoscope is so constructed as to get the epiglottis out of the way of direct inspection. This instrument is practically a univalve speculum of sufficient length to reach the base of the tongue in front of the epiglottis. This organ is connected with the tongue by the glosso-epiglottic ligaments. When these ligaments are pressed downward and forward toward the hyoid bone, the epiglottis is tilted forward and the dorsum of the tongue and the larynx are brought into the same place. During the

examination the patient if seated, with neck extended and the head thrown back, and with good illumination, the examiner can look directly into the larynx. In certain cases in which the epiglottis cannot be pulled forward in the way described, a straight instrument is used, which is brought over the cocainized epiglottis, which is thus brought forward. An attachment can slide over the tongue depressor for the purpose of avoiding trouble with the teeth and moustache. As the patient naturally is apt to close the mouth, a cap is placed upon the instrument. The advantage of this tongue depressor is, that instead of the ordinary laryngoscopic instruments, direct instruments may be used, for instance, forceps and probes, and operations can be performed as upon any other part of the body. Dr. Cohen showed an ingenious arrangement fn the handle of the tongue depressor by means of which any insufficiency in the light may be supplemented. This consist of a small electric light of twelve volts, with the aid of which and by means of a contrivance of a hood and prism the light is thrown horizontally along the tongue depressor. Not every patient will submit to the use of this instrument, as a good deal of pressure must be exerted; but as familiarity with it increases it will be available in a great many more cases than now seems possible. The instrument has the further advantage of showing the posterior wall of the larynx, while the laryngoscope reveals principally the anterior parts; thus one instrument supplements the other.

By invitation of the directors, B. ALEXANDER RANDALL, M.D., of Philadelphia, exhibited a large number of lantern views demonstrating

THE SURGICAL ANATOMY AND PATHOLOGY OF THE MASTOID.

REVIEWS.

DISEASES OF THE SKIN; Constituting the fifth volume of "Twentieth Century Practice; an International Encyclopedia of Modern Medical Science." Wm. Wood & Co., New York.

THIS volume is the work of various writers, including some of the leading authorities of Europe and America.

Like every production of multiple authorship, it is admirable in some parts and open to criticism on account of its weaker portions. The arrangement of the various classes of skin disease is hardly to be commended since it involves repetition in the discussion of some affections and no mention of others.

The work will doubtless be of value to dermatologists, who will find in it some facts which are new and important. To the physician in general practice, however, it will be somewhat confusing and far less instructive than any one of the recent standard works on dermatology. It can hardly be expected that he will appreciate a volume treating of "Pinta disease," an eruption confined chiefly to the tropical regions of South America. "Hodara's disease," a kind of trichorrhexis nodosa, which, Menahem Hodara says, is frequent among the women of Constantinople, and other rare dermatoses never seen and rarely heard of in America, to the exclusion of practical articles on ichthyosis, lupus vulgaris, and other common affections which he is often called upon to treat.

The work is well printed, and contains a few new and instructive illustrations.

PRINCIPLES OF BACTERIOLOGY. By A. C. ABBOTT, M.D. Third edition enlarged and thoroughly revised; 12 mo.; pp. 493. Published by Lea Brothers & Company, Philadelphia and New York.

THAT a third edition of this valuable work should be required in a little less than a year, is in itself evidence of its intrinsic merit, and in presenting this important subject in so compact and readable a volume, the author has placed not only the teachers of bacteriology, but also the whole medical profession under obligation to him. After presenting the most reliable methods of sterilization, the preparation of nutrient media and the isolation of bacteria, this volume proceeds to give a clear outline of experiments in and practical applications of the principles underlying this important department of medical knowledge. The biology of the more common pathogenic organisms is also given. As a text-book for students and beginners in the study of bacteriology, as well as for the busy practitioner, who desires a certain degree of familiarity therewith, this book can be unhesitatingly recommended. The style is condensed and succinct without sacrificing in any degree ease or clearness. The mechanical preparation of the book is to be commended, and the illustrations are good and helpful. Of these, seventeen are colored.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, FOR THE PERIOD FROM JUNE 21, 1896, TO JULY 15, 1896.

PURVIANCE, GEORGE, Surgeon, to assume temporary command of service at Philadelphia, Pa., for thirty days, July 3, 1896.

PECKHAM, C. T., Passed Assistant Surgeon, placed on waiting orders, July 3, 1896.

WHITE, J. H., Passed Assistant Surgeon, to proceed from New York, N. Y., to Key West, Fla., for special duty, July 10, 1896.

VAUGHAN, G. T., Passed Assistant Surgeon, granted leave of absence for thirty days, July 7, 1896.

STIMPSON, W. G., Passed Assistant Surgeon, to assume temporary command of Service at Port Townsend, Washington, July 3, 1896.

SPRAGUE, E. K., Assistant Surgeon, to proceed from Boston, Mass., to New York, N. Y., for temporary duty, July 10, 1896.

WICKES, H. W., Assistant Surgeon, granted leave of absence for twenty-seven days, July 8, 1896.

GREENE, J. B., Assistant Surgeon, to proceed from Baltimore, Md., to Point Pleasant, N. J., for physical examination of crews of Life Saving Service, July 13, 1896.

JORDAN, W. M., Assistant Surgeon, to proceed from Birmingham, Ala., to New York, N. Y., for temporary duty, July 13, 18,6.

PROMOTIONS.

NYDEGGAR, J. A., Assistant Surgeon, commissioned by the President as Passed Assistant Surgeon, July 7, 1896.

STEWARD, W. J. S., Assistant Surgeon, commissioned by the President as Passed Assistant Surgeon, July 8, 1896.

APPOINTMENT.

JORDAN, WILLIAM M., of Alabama, commissioned by the President as Assistant Surgeon, July 7, 1896.